Draft Supplemental Environmental Impact Report for the

Buena Vista Creek Channel Maintenance Project

EIR 02-03A; SCH No. 2002101015

FEBRUARY 2013

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DRAFT

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for the
Buena Vista Creek Channel Maintenance Project
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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
APCD	Air Pollution Control District
BMP	best management practice
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of Carlsbad Utilities Department
CO	carbon monoxide
CO_2	carbon dioxide
CWA	Clean Water Act
EDR	Environmental Data Resources, Inc.
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FPA	Focused Planning Area
GHG	greenhouse gas emission
GPS	global positioning system
HCP	Habitat Conservation Plan
HMP	Habitat Management Plan
LOS	levels of service
MHCP	Multiple Habitat Conservation Program
MMRP	Mitigation Monitoring and Reporting Program
NCCP	Natural Communities Conservation Plan
NO_x	oxides of nitrogen
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
PEIR	Program Environmental Impact Report
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns
PM_{10}	particulate matter less than or equal to 10 microns
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
RAQS	Regional Air Quality Strategy
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SANDAG	San Diego Association of Governments
SB	Senate Bill

ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
SCIC	South Coastal Information Center
SDRWQCB	San Diego Regional Water Quality Control Board
SEIR	Supplemental Environmental Impact Report
SIP	State Implementation Plan
SR-	State Route
SUP	special use permit
SWRCB	State Water Resources Control Board
SWQCB	State Water Quality Control Board
TMDL	Total Maximum Daily Load
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WDR	Waste Discharge Requirement

EXECUTIVE SUMMARY

ES-1 INTRODUCTION

This Supplemental Environmental Impact Report (SEIR) has been prepared by the City of Carlsbad Utilities Department (City) as lead agency pursuant to the California Environmental Quality Act (CEQA) Public Resources Code 21000 et seq., and the State CEQA Guidelines (California Code of Regulations, Section 15000 et seq.). This SEIR has been prepared to evaluate the environmental effects of the proposed Buena Vista Creek Channel Maintenance Project (the "project").

The approximately 11.2 acre Buena Vista Creek project site is located along Buena Vista Creek between the South Vista Way bridge and the Jefferson Street bridge within the Buena Vista Channel Maintenance District. The project site is bounded by SR-78 to the north and Plaza Camino Real shopping mall to the south. The western portion of the project site is in the California Coastal Commission zone and the project site falls within both the cities of Oceanside and Carlsbad.

The project would require certification of this SEIR and adoption of the Mitigation Monitoring and Reporting Program by the City of Carlsbad City Council. Other discretionary actions, including approval of the proposed project, may also be required by other agencies including a Coastal Development Permit from the California Coastal Commission, a California Department of Fish and Wildlife Streambed Alteration Agreement (SAA), U.S. Fish and Wildlife Service, a Regional Water Quality Control Board Clean Water Act Section 401 and 404 permits, as well as the U.S. Army Corps of Engineers.

This SEIR is being prepared to renew the necessary permits to continue the ongoing maintenance activities for a minimum of 20 years. As described above, agencies other than the City will use this SEIR including, but not limited to, the City of Oceanside and other state agencies having discretionary approval or jurisdiction by law over natural resources that might be impacted by a project.

ES-2 PROJECT DESCRIPTION AND BACKGROUND

The Buena Vista Channel Maintenance District (Maintenance District) was formed in 1989 and is administered by the City of Carlsbad to provide an effective, consistent means of clearing the channel. In 2003, the City of Carlsbad approved a Program Environmental Impact Report (PEIR) to address an ongoing maintenance program that included flood improvement measures in the Buena Vista Creek channel to reduce flooding of the Maintenance District properties. The maintenance program was permitted by the California Department of Fish and Game for a 10-year period from 2004 through 2013. This SEIR is being prepared to renew the necessary permits to continue the ongoing maintenance activities for a minimum of 20 years.

Similar to the project analyzed in 2003, the proposed maintenance program consists of hand removal of vegetation within the northern half of the channel from the South Vista Way bridge in the east to the California Coastal Zone in the west. The currently proposed project would extend the maintenance activities west into the California Coastal Zone to Jefferson Street bridge. The proposed project would remove vegetation by hand within the northern half of the channel, to minimize impacts to southern willow scrub, the majority of which occurs in the southern half of the channel. The vegetation would be removed in the northern half of the channel over a period of 5 years so that one-fifth of the northern half of the channel, and one-tenth of the vegetation in the entire channel project site would be removed by hand every year. Vegetation would be removed down to the base of the vegetation community or the water level every year and no ground disturbance would occur during the lifetime of the proposed project. Removal of vegetation would not occur between March 15 and September 15 to avoid impacts to most nesting birds in accordance with the Migratory Bird Treaty Act. For purposes of vegetation removal, maintenance vehicles will use the existing access road that runs parallel to the northern bank of the channel. Additional detailed project description information is provided in *Chapter 3.0* of this SEIR.

ES-3 IMPACTS DETERMINED TO BE SIGNIFICANT

Table ES-1 provides a summary of significant impacts of the proposed project pursuant to the CEQA Guidelines Section 15123(b)(1). Impacts associated with biological resources as well as hydrology and water quality were found to be less than significant with mitigation incorporated.

ES-4 EFFECTS NOT FOUND TO BE SIGNIFICANT

Several environmental topics were found not to be significant. These topic areas include aesthetics, agricultural resources, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, utilities and service systems.

Table ES-1
Summary of Significant Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	Biological Resources	
The proposed project would result in direct temporary impacts to vegetation communities and land cover types including freshwater marsh, Southern willow scrub, and open water. Potential short-term indirect impacts to vegetation communities, including fugitive dust, increased human activity, and the introduction of chemical pollutants (including herbicides), would result in a significant impact.	Mitigation Measures BIO-1 through BIO-4 are recommended for the identified impacts to biological resources: **BIO-1** Proposed mitigation for temporary impacts to special-status vegetation communities shall be through on-site enhancement. The Maintenance District shall be responsible for monitoring and eradicating exotic plant species within the 11.2-acre project area annually for the duration of the maintenance program. The enhancement shall be implemented in accordance with the Buena Vista Creek Channel Exotic Plant Species Control Plan (Dudek 2003) and any additional updates to this plan required by the California Department of Fish and Wildlife (CDFW) in the Streambed Alteration Agreement. A monitoring report documenting the invasive exotic plant species removed and an assessment of the functions and values of the 11.2-acre project area shall be submitted to the City of Carlsbad City Planner and City Engineer annually. **BIO-2** To prevent inadvertent disturbance to areas outside the limits of the maintenance areas, the vegetation removal shall be monitored by a qualified biologist. A biologist shall be contracted by the City of Carlsbad to perform biological monitoring during maintenance activities. Additionally, the project biologist shall implement or verify implementation of the following monitoring requirements and Best Management Practices (BMPs) and conduct pre-activity education meetings to review each of these requirements and BMPs. Monitoring reports and a post-construction monitoring report shall be prepared to the satisfaction of the City of Carlsbad to document compliance with BIO-2. 1. During vegetation removal activities, biologist shall conduct daily site visits. 2. Biologist shall discuss procedures for minimizing harm to or harassment of wildlife encountered during maintenance activities with the contractor and other key construction personnel prior to activities.	Implementation of Mitigation Measures BIO-1through BIO-4 would mitigate impacts to a less than significant level.

Table ES-1
Summary of Significant Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	3. Biologist shall review and/or designate the vegetation removal area in the field with the contractor in accordance with the final plan. 4. Biologist shall flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to vegetation removal activities. 5. Maintenance vehicles shall not exceed 15 miles per hour on unpaved roads adjacent to project site or the right-of-way accessing the site. 6. If trash and debris need to be stored overnight during the maintenance activities, fully covered trash receptacles that are animal-proof and weather-proof will be used by the maintenance contractor to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Alternatively, standard trash receptacles may be used during the day, but must be removed each night. 7. Cut vegetation shall be hauled out of the channel and stored, if necessary, where it cannot be washed by rainfall or runoff into the channel. When maintenance activities are completed, any excess materials or debris shall be removed from the project site. 8. Temporary structures and storage of construction materials shall not be located in jurisdictional waters, including wetlands and riparian areas. 9. Staging/storage areas for construction equipment and materials shall not be located in jurisdictional waters, including wetlands and riparian areas. 10. Any hand-held equipment used for maintenance activities that is operated within jurisdictional waters, including wetlands and riparian areas, shall be checked and maintained by the operator daily to prevent leaks of oil or other petroleum products that could be deleterious to aquatic life if introduced to the watercourse. 11. No equipment maintenance shall be performed within 100-feet of jurisdictional waters, including wetlands and riparian areas, where petroleum products or other pollutants from the equipment may enter these areas. Fueling of equipment shall not occur on the project site. 12. Pets on or adjacent to construction sites shall not be permitted by the operator. **BIO-3** In order to avoid temporary indirect impacts to nesting birds, maintenance activities shall not occur during the nesting bird season (March 15 through September 15). **BIO-4** All applicable laws, regulations, safety precautions, and label directions must be followed when performing pest control. All pesticide applications shall be performed	

Table ES-1
Summary of Significant Environmental Impacts

Impact	Mitigation Measures	Level of Significance After Mitigation
	by a contractor with a valid Qualified Applicator License (QAL) and a valid Pest Control Business License. A licensed Pest Control Adviser (PCA) shall be consulted if specific pest control recommendations are required. The timing of any weed control shall be determined for each plant species with the goal of controlling populations before they can reproduce by spreading vegetatively or producing seed.	
Hydrology and Water Quality		
The project would result in potentially significant impacts from equipment required for maintenance activities would include trucks for the transport of the vegetation which have the potential for spills of hazardous materials, such as fuel or oil adjacent to the creek.	Mitigation Measure HYDRO-1 is recommended to minimize the potential impacts to hydrology and water quality: **HYDRO-1** The Maintenance District shall ensure that all equipment required for maintenance activities shall be refueled or maintained within designated staging areas (adjacent parking lots). Best Management Practices (BMPs) to contain accidental spills of hazardous materials shall be utilized when performing vehicle maintenance or refueling. Such BMPs may include the following: • When equipment is being utilized along the access road, drip pans shall be placed under all potential discharge conduits or leaks. • "Spot clean" leaks and drips routinely to prevent runoff of spillage. • Post signs to remind employees not to top off the fuel tank when filling and signs that ban employees from changing engine oil or other fluids at the project location. • Report leaking vehicles to fleet maintenance.	Implementation of Mitigation Measure HYDRO-1 would mitigate potential impacts to a less than significant level.

ES-5 AREAS OF KNOWN CONTROVERSY

Pursuant to Section 15082 of the CEQA Guidelines, the City circulated a Notice of Preparation (NOP) dated February 28, 2012, to interested agencies, organizations, and parties. A total of seven written comment letters were received during the scoping period and are included in *Appendix A*. Issues raised during the scoping process were in regard to biological resources, hydrology and water quality, cultural resources, and hazardous waste. Biological resources and hydrology and water quality are addressed in *Chapter 4*. While issues were raised regarding cultural resources, the project does not propose any ground-disturbing activities. Therefore, the potential for impacts to cultural resources is minimal and the analysis is provided in *Chapter 5* along with an analysis of issues raised in regard to hazardous waste that were not found to be significant.

ES-6 PROJECT ALTERNATIVES

An analysis of alternatives has been provided in this document to provide decision makers with a reasonable range of possible alternatives to be considered. The discussion in this SEIR focuses on five alternatives:

- No Project Alternative
- Alternative 1: Vegetation Clearing of the Entire Channel Bed Every Year
- Alternative 2: Vegetation Clearing from One-Half of the Channel Bed Every Year
- Alternative 3: Vegetation Clearing from One-Half of the Channel Bed Every 3 Years
- Alternative 4: Vegetation Clearing from One-Half of the Channel Bed Every 6 Years.

A matrix displaying the major characteristics and significant environmental effects of each alternative is provided in *Table ES-2* to summarize the comparison. The matrix also indicates whether the alternative would be feasible in terms of meeting the project objectives as defined in *Chapter 3*.

Table ES-2
Summary of Alternatives' Impacts

Environmental Issue	No Project Alternative	Alternative 1: Vegetation Clearing of the Entire Channel Bed Every Year	Alternative 2: Vegetation Clearing from ½ the Channel Bed Every Year	Alternative 3: Vegetation Clearing from ½ the Channel Bed Every Three Years	Alternative 4: Vegetation Clearing from ½ Channel Bed Every Six Years
Biological Resources	Impacts avoided	Greater impacts	Greater impacts	Greater impacts	Impacts reduced

Table ES-2
Summary of Alternatives' Impacts

Environmental Issue	No Project Alternative	Alternative 1: Vegetation Clearing of the Entire Channel Bed Every Year	Alternative 2: Vegetation Clearing from ½ the Channel Bed Every Year	Alternative 3: Vegetation Clearing from ½ the Channel Bed Every Three Years	Alternative 4: Vegetation Clearing from ½ Channel Bed Every Six Years
Hydrology and Water Quality	Potential spill impacts avoided; other impacts would be greater	Similar impacts	Similar impacts	Similar impacts	Potential water quality impacts would be slightly greater, other impacts would be similar
Meets Most Project Objectives?	No	Yes	Yes	Yes	Yes

ES-7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Per Section 15126.6(e)(2) of the CEQA Guidelines, an environmentally superior alternative must be identified (other than the no project alternative). CEQA also requires that the environmentally superior alternative be selected from the range of reasonable alternatives that could feasibly attain the basic objectives of the project. *Table ES-2* compares the impacts resulting from implementation of the different project alternatives.

As discussed in *Section 7.2* and summarized in *Table 7-8,* impacts resulting from implementation of the proposed project would mostly be avoided under the No Project Alternative. However, the project objectives would not be met under this alternative.

As discussed above, when the No Project Alternative is the environmentally superior alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Alternatives 1 through 3 would result in greater impacts to biological resources, and would have similar impacts to hydrology and water quality. Alternative 4 would result in reduced impacts to biological resources, with similar impacts to hydrology and water quality.

Overall, Alternative 4 would achieve the greatest reduction in environmental impacts, and thus would be the environmentally superior alternative.

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CHAPTER 1
INTRODUCTION

1.1 BACKGROUND

The Buena Vista Channel Maintenance District (Maintenance District) was formed in 1989 and is administered by the City of Carlsbad. The Maintenance District boundaries include a portion of the Buena Vista Creek channel from the Jefferson Street bridge upstream or east to the South Vista Way bridge, within the cities of Oceanside and Carlsbad. The purpose of the Maintenance District is to provide an effective, consistent means of clearing the channel. In 2003, the City of Carlsbad prepared a Program Environmental Impact Report (PEIR) to address an ongoing maintenance program in the Buena Vista Creek channel to reduce flooding of the Maintenance District properties. The project was known as the Buena Vista Creek Channel Maintenance Project and included flood improvement measures to reduce flooding of the Maintenance District properties. The PEIR was approved by the City of Carlsbad in 2003, and the maintenance program was permitted by the California Department of Fish and Wildlife for a 10-year period from 2004 through 2013. This Supplemental EIR (SEIR) is being prepared to renew the necessary permits to continue the ongoing maintenance activities for a minimum of 20 years.

Similar to the project analyzed in 2003, the proposed maintenance program consists of hand removal of vegetation within the northern half of the channel between the South Vista Way bridge to the east and the Jefferson Street bridge to the west. The City of Carlsbad is proposing to remove vegetation by hand within the northern half of the channel, which is dominated primarily by freshwater marsh, to minimize impacts to southern willow scrub, the majority of which occurs in the southern half of the channel. The vegetation would be removed in the northern half of the channel over a period of 5 years: one-fifth of the northern half of the channel would be removed by hand down to the base of the vegetation community or the water level every year. No ground disturbance would occur during the lifetime of the proposed project. Thus, each year, one-tenth of the vegetation in the channel project site would be removed. Vegetation would not be removed between March 15 and September 15 to avoid impacts to most nesting birds in accordance with the Migratory Bird Treaty Act. For purposes of vegetation removal, maintenance vehicles will use the existing access road that runs parallel to the northern bank of the channel.

1.2 PURPOSE AND SCOPE OF THIS SEIR

This SEIR updates the analysis presented in the 2003 PEIR for the Buena Vista Creek Channel Maintenance Project. Specifically, this document addresses updated California Environmental Quality Act (CEQA) Guidelines that have been issued since 2003, as well as continuing the ongoing maintenance activities for a minimum of 20 years. This SEIR has been prepared in accordance with the requirements of the City of Carlsbad and the statute and guidelines of CEQA (14 CCR 15163; California Public Resources Code, Sections 21083 and 21166). The

SEIR is an informational document intended for use by both decision makers and the public. It provides relevant information concerning the potential environmental effects associated with a long-term channel maintenance program for purposes of flood control along Buena Vista Creek between the South Vista Way bridge and the Jefferson Street bridge, within the cities of Carlsbad and Oceanside. The Lead Agency for the project is the City of Carlsbad Utilities Department (City). The City has determined that an SEIR is the appropriate CEQA document in accordance with CEQA Guidelines Section 15163. This SEIR addresses the potential impacts associated with continuing the maintenance activities for an additional 20 years.

As the designated Lead Agency, the City has assumed responsibility for preparing this document. The decision to implement the proposed project is within the purview of the City's City Council. When deciding whether to approve the proposed project, the City Council will use the information provided in this SEIR to consider potential impacts to the physical environment associated with the proposed project. The City Council will consider all written comments received on the Draft SEIR during the 45-day public review period in making its decision to certify the SEIR as complete and in compliance with CEQA and in making its determination whether to approve or deny the project. The project will be subject to additional review outside of CEQA in accordance with City policies and procedures at various stages of the project. This will likely involve planning and public works.

Agencies other than the City will also use this SEIR. According to CEQA Guidelines Section 15381, Responsible Agencies are those agencies that have discretionary approval over one or more actions involved with the development of the project. This includes but is not limited to the City of Oceanside. In addition, Trustee Agencies are state agencies having discretionary approval or jurisdiction by law over natural resources that might be impacted by a project. Trustee Agencies that would or may have involvement with this project include the California Coastal Commission, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Regional Water Quality Control Board, and U.S. Army Corps of Engineers.

Additional information regarding City and agency permits and approvals is detailed in *Section 3.3, Discretionary Actions*.

1.3 CEQA REQUIREMENTS

CEQA (California Public Resources Code, Section 21000 et seq.) requires the preparation and certification of an EIR for any project that a Lead Agency determines may have a significant effect on the environment. According to Section 21002.1(a) of the CEQA statute, "The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project and to indicate the manner in which those significant effects can be mitigated or avoided." CEQA also establishes mechanisms whereby the public and decision makers can be informed about the nature of the project being proposed, as

well as the extent and types of impacts that the project and its alternative would have on the environment if they were to be implemented.

According to CEQA Guidelines Section 15162(a)(3)(A), when an EIR has been certified for a project, no Subsequent EIR shall be prepared for that project unless the Lead Agency determines, on the basis of substantial evidence in the light of the whole record, new information of substantial importance, which was not known and could not have been know with the exercise of reasonable diligence at the time the previous EIR was certified as complete, shows that the project will have one or more significant effects not discussed in the previous EIR.

CEQA Guidelines Section 15163(a) states "A Lead or Responsible Agency may prepare a supplement to an EIR rather than a Subsequent EIR if: (1) any of the conditions described in Section 15162 would require the preparation of a subsequent EIR, and (2) only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation."

Furthermore, when the agency decides whether to approve the project, the decision-making body shall consider the previous EIR as revised by the SEIR (CEQA Guidelines, Section 15163(e)). A finding under Section 15091 shall be made for each significant effect shown in the previous EIR.

1.3.1 Notice of Preparation and Scoping

CEQA establishes mechanisms whereby the public and decision makers can be informed about the nature of the project being proposed and the extent and types of impacts that the project and its alternatives would have on the environment should the project or alternatives be implemented. Pursuant to Section 15082 of the CEQA Guidelines, the City circulated a Notice of Preparation (NOP) dated February 28, 2012, to interested agencies, organizations, and parties. The NOP was also sent to the State Clearinghouse at the California Office of Planning and Research. The State Clearinghouse assigned a state identification number (SCH no. 2002101015) to this SEIR.

The NOP is intended to encourage interagency communication regarding the proposed action so that agencies, organizations, and individuals are afforded an opportunity to respond with specific comments and/or questions regarding the scope and content of the SEIR. The 30-day public scoping period ended on March 28, 2012.

Comments received during the NOP public scoping period were considered during the preparation of this SEIR. The NOP and comments are included in *Appendix A*. Based on the scope of the proposed action as described in the NOP, the following issues were determined to be potentially significant and are therefore addressed in *Chapter 4, Environmental Analysis,* of this document:

- Biological Resources
- Hydrology and Water Quality.

Additional CEQA-mandated environmental areas such as aesthetics, agricultural resources, air quality, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation, utilities and service systems were not found to be significant. These issues are addressed in *Chapter 5, Effects Not Found to be Significant,* of this SEIR. Other CEQA-mandated topics, such as cumulative impacts, growth inducement, alternatives, and significant irreversible changes are addressed in subsequent sections.

A total of seven written comment letters were received during the scoping period. Issues raised during the scoping process were in regard to biological resources, hydrology and water quality, cultural resources, and hazardous waste. As discussed above, biological resources and hydrology and water quality are addressed in *Chapter 4*. While issues were raised regarding cultural resources, the project does not propose any ground-disturbing activities; therefore, the potential for impacts to cultural resources is minimal and the analysis is provided in *Chapter 5*. In addition, issues were raised in regard to hazardous waste, but as presented in *Chapter 5*, no significant impacts would result.

1.3.2 Overview of SEIR Process

This SEIR has been made available to members of the public, agencies, and interested parties for a 45-day public review in accordance with CEQA Guidelines Section 15105. Public review of the Draft SEIR is intended to focus "on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated" (CEQA Guidelines, Section 15204). The Notice of Completion of the Draft SEIR has been filed with the State Clearinghouse as required by CEQA Guidelines Section 15085. In addition, the Notice of Availability of the Draft SEIR has been distributed pursuant to CEQA Guidelines Section 15087. This SEIR is available for review during the 45-day public review period at the following locations:

- City of Carlsbad Planning Department, 1635 Faraday Avenue, Carlsbad, California 92008
- Carlsbad City Clerk's Office, 1200 Carlsbad Village Drive, Carlsbad, California 92008
- Georgina Cole Library, 1250 Carlsbad Village Drive, Carlsbad, California 92008
- Carlsbad Main Library, 1775 Dove Lane, Carlsbad, California 92011
- Oceanside Public Library, 330 North Coast Highway, Oceanside, California 92054.
- City of Carlsbad website at: http://www.carlsbadca.gov/services/departments/planning/Pages/agendas-minutes-and-notices.aspx.

During the public review period, the City will hold a meeting to provide the public an opportunity to comment on the Draft SEIR. All members of the public and interested persons are welcome to attend and present their concerns.

Once the 45-day public review period has concluded, the City will review all public comments on the Draft SEIR, provide a written response to comments, and authorize revisions to the Draft SEIR text, if necessary. The final Mitigation Monitoring and Reporting Program (MMRP) will be incorporated into the Final SEIR and will include monitoring team qualifications.

1.4 ORGANIZATION AND CONTENT OF THIS SEIR

This SEIR is organized to provide a comprehensive project analysis of the potentially significant environmental impacts, mitigation measures, and alternatives for the proposed Buena Vista Creek Channel Maintenance Project. This SEIR is organized as follows:

- An *Executive Summary* of the SEIR is provided at the beginning of this document. This summary outlines the conclusions of the environmental analysis, as well as a summary of the project compared to the alternatives analyzed in the SEIR. This section also includes a table summarizing all environmental impacts identified in this SEIR along with the associated mitigation measures proposed to reduce or avoid each impact.
- *Chapter 1, Introduction*, serves as a forward to this SEIR, introducing the project, the applicable environmental review procedures, and format of the SEIR.
- *Chapter 2, Environmental Setting*, describes the project location and physical environmental setting in and around which the proposed project is situated.
- *Chapter 3, Project Description*, provides a thorough description of the proposed project elements, the purpose and need for the project, project objectives, and required discretionary approvals.
- *Chapter 4, Environmental Analysis*, provides a project-level analysis of the potentially significant environmental impacts identified for the proposed project, as well as proposed mitigation measures to reduce or avoid any potentially significant impacts.
- *Chapter 5, Effects Not Found to be Significant*, addresses the environmental impacts of the project that would result in impacts that are considered less than significant.
- *Chapter 6, Other CEQA Requirements*, addresses significant environmental effects that cannot be avoided, the significant irreversible environmental changes that would result from implementation of the proposed project, and growth-inducing impacts associated with the proposed project.

- *Chapter 7, Alternatives*, discusses five alternatives to the proposed project, including a clearing the entire channel annually alternative and a no project alternative.
- *Chapter 8, References*, provides bibliographic information related to resources used during the document preparation.
- *Chapter 9, List of Preparers*, provides a list of report preparation personnel.
- *Appendices* include various technical studies and correspondence prepared for the proposed project, as listed in the *Table of Contents*.

CHAPTER 2
ENVIRONMENTAL SETTING

In accordance with Section 15125 of the California Environmental Quality Act (CEQA) Guidelines, this chapter provides a description of the general environmental setting for the project area, including existing site conditions and land uses, and surrounding land uses at the time the Notice of Preparation (NOP) was published. More detailed descriptions of the environmental setting for each environmental issue area are provided in the corresponding section in *Chapter 4, Environmental Impacts*, of this Environmental Impact Report (EIR).

2.1 LOCATION

The proposed project is located in northern San Diego County, within the cities of Carlsbad and Oceanside (*Figure 2-1, Regional Map,* and *Figure 2-2, Vicinity Map*). The City of Oceanside is bordered by the U.S. Marine Corps Base Camp Pendleton to the north, unincorporated portions of San Diego County to the east, the City of Vista to the southeast, the City of Carlsbad to the south, and the Pacific Ocean to the west. The City of Carlsbad is bordered by the City of Oceanside to the north, the cities of Vista and San Marcos and unincorporated portions of San Diego County to the east, the City of Encinitas to the south, and the Pacific Ocean to the west.

The Buena Vista Creek Channel Maintenance District encompasses the area south of State Route 78 (SR-78), east of El Camino Real, north of Marron Road, and east of Jefferson Street (see *Figure 2-3, Buena Vista Channel Maintenance District*). The proposed project study area is located along Buena Vista Creek between the South Vista Way bridge and the Jefferson Street bridge; the project corridor is bounded by SR-78 to the north and Plaza Camino Real shopping mall to the south. The project site encompasses a total of approximately 11.2 acres.

2.2 PROJECT BACKGROUND

The Buena Vista Creek channel was relocated to its current alignment to construct a parking lot for Plaza Camino Real in 1979. The Buena Vista Channel Maintenance District (Maintenance District) was formed in 1989 and is administered by the City of Carlsbad. The Maintenance District boundaries include a portion of the Buena Vista Creek channel from the Jefferson Street bridge upstream or east to the South Vista Way bridge. The purpose of the Maintenance District is to provide an effective, consistent means of clearing the channel. The services provided to the Maintenance District by the City include the following: "The work will consist of periodic cleaning of the overgrowth and silt that impedes the free flow of water in the creek channel. A typical method of removal would be by utilization of dredging equipment consisting of a drag line and/or muck pump. At times, this would require the removal of dense vegetation materials by hand" (City of Carlsbad 1989).

The services must provide a special and direct benefit to the properties and parcels in the Maintenance District boundaries (City of Carlsbad 1989).

The Buena Vista Creek channel serves as a flood control channel and is riprap-sided with a natural bottom. Since the channel was completed, the north half of the channel has been dredged twice, once in 1993 and again in 1997. The resource agencies that issued permits for the dredging in 1993 and 1997 requested that the City review alternatives to dredging the channel. Further requests for the City to review alternatives to dredging the channel were made by the California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers (ACOE), and Regional Water Quality Control Board (RWQCB) on March 12, March 13, and April 10, 2002.

Since the 1997 channel dredging, continued growth of wetlands plants in the channel increased channel roughness, requiring further maintenance. The effect of increased channel roughness resulted in greater resistance to water flows that jeopardize the flood control capacity of the stream channel. The City therefore evaluated the need, frequency, and methods to maintain Buena Vista Creek channel within the Maintenance District. Hydraulic studies were prepared to evaluate the flood control capacity within this portion of the stream channel, and it was determined that during a 100-year storm event, flows would overtop the channel banks and inundate the adjacent parking lots in the Maintenance District. In response, in 2003, the City approved a Program EIR (PEIR) to implement an ongoing maintenance program to reduce flooding of the Maintenance District properties.

Since 2003, the City has conducted a maintenance program that consists of hand removal of vegetation within the northern half of the channel between the South Vista Way bridge and the Coastal Zone boundary over a 5-year period (*Figure 2-4, 2003 PEIR Study Area*). Permanent vertical marker posts were placed in the project area using global positioning system (GPS) coordinates to mark the corners of each section of the project area. Poles are replaced as necessary if they are removed or knocked down by storm events. The maintenance activities, which are carried out by a landscape contractor that specializes in habitat restoration, are performed outside of the bird breeding season and outside of the growing season to avoid/minimize the impacts on the cattails and other wetland plants being cut back. Approximately 10% of the above-ground vegetation in the project area is cut back and removed each year. The cut vegetation is hauled out of the channel and placed directly into a haul away bin. When the bin is full, Waste Management collects the full bin and leaves an empty bin until the work is done. The project area is divided into five segments for vegetation cutting. Only the northern half of the channel is cut and the southern half is left alone, except to control invasive exotic species and to remove accessible trash. The remaining vegetation in the channel continues to act as a filter to capture nutrients and other pollutants, as well as trash and other debris. A biological monitor visits the site each work day to discuss the work, inspect work progress, and answer questions. The biological monitor submits

daily reports to the City following each site visit, and annual reports to the City and the California Department of Fish and Wildlife; as required by the Streambed Alteration Agreement.

An Exotic Plant Species Control Plan was prepared and implemented as part of the current maintenance program. This plan identifies specie specific control measures and takes into account for the type of species, size and amount of the biomass, and/or the location of the species. Control measures include pulling species, treating them with herbicide and left in place to decompose, or cutting and treating them with herbicide.

A Revegetation Plan was implemented as part of the 2003 maintenance program. The Revegetation Plan was prepared to revegetate the disturbed wetland areas within the creek channel and upland areas on the riprapped northern bank. A native upland seed mix was sown between the riprap on the northern bank, and native upland plants have become established in the voids where enough soil exists for plants to grow. Since completion of the initial removal of invasive exotic plant species from the creek channel, there have been no significant bare areas which would require revegetation with native species. No further habitat restoration efforts have taken place since the first year, beyond the on-going control of invasive exotic plant species each year.

2.3 ENVIRONMENTAL SETTING AND LAND USES

The project site is located within the Peninsular Range Geomorphic Province, which is characterized by northwest trending mountain ranges separated by fault zones. The topography of the project area increases in elevation to the north and south, with the highest elevation located to the north.

The project site is located within the Buena Vista Creek Hydrologic Area of the Carlsbad Hydrologic Unit and specifically within the El Salta Subarea Area (*Figure 2-5, Hydrologic Setting*). The Hydrologic Basin Number is 904.21. Buena Vista Creek channel flows east to west, which then flows directly into Buena Vista Lagoon immediately west of the project site. Buena Vista Creek channel (including Buena Vista Lagoon) flows for approximately 1.5 miles until its confluence with the Pacific Ocean. The on-site portion of Buena Vista Creek channel is a perennial stream that receives water from naturally occurring runoff within the watershed.

The approximately 11.2-acre project site consists of the Buena Vista Creek channel between the South Vista Way bridge and Jefferson Street bridge. Surrounding land uses include a vacant disturbed lot, SR-78, commercial uses, and Buena Vista pump station to the north; upstream Buena Vista Creek, pump station, commercial uses, and parking lots to the east; commercial uses and associated parking lot, an existing lift station, and sewer pipeline easement to the south; and Jefferson Street and Buena Vista Lagoon to the west.

2.4 APPLICABLE GENERAL PLANS AND REGIONAL PLANS

Section 15125(d) of the CEQA Guidelines requires that an EIR include a discussion of any inconsistencies between the proposed project and applicable general plans and regional plans.

Below is a summary of the applicable regional and general plans. *Chapter 5, Effects Not Found to be Significant,* discusses the project's consistency with these plans.

2.4.1 Local Plans

2.4.1.1 City of Carlsbad

General Plan

The City of Carlsbad General Plan serves to identify the community's goals and policies relating to land use and development (City of Carlsbad 2004a, p. 6). Through its long-term vision, it assists local government in decision making while also helping to inform citizens, developers, and others about rules for development within the community (City of Carlsbad 2004a, p. 6)

The Land Use Element of the General Plan identifies the desirable pattern of development in the City given current circumstances, information, and requirements (City of Carlsbad 2009, Land Use Element p. 1). The General Plan Land Use Map designates the project site as Open Space, which includes special resource areas and existing parks, and in this case coincides with the location of the Buena Vista Creek (City of Carlsbad 2009, Land Use Element p. 20).

The Land Use Element also discusses the Buena Vista Creek Watershed, and it highlights five reasons why the manner in which the corridor develops is important: (1) the watershed supports sensitive wildlife species, wetlands, and riparian habitat; (2) existing land uses and zoning designations may not be appropriate or compatible to protect these sensitive resources; (3) urbanization in the watershed has the potential to accelerate sedimentation into Buena Vista Lagoon; (4) significant traffic issues along this corridor related to SR-78 on- and off-ramps, El Camino Real, Rancho Del Oro overpass, and Marron Road; and (5) the rapid urbanization along this corridor has the potential to severely degrade the aesthetic worth of this valuable resource area (City of Carlsbad 2009, Land Use Element p. 28).

Zoning

The City of Carlsbad Zoning Map designates the project (i.e., Buena Vista Creek), as Open Space (O-S) with a special Flood Hazard Area Overlay, indicating a special use permit (SUP) is required (City of Carlsbad 2012a). However, because the maintenance activities do not result in any structures or land alterations, an SUP is not required. The intent and purpose of the O-S zone is to provide for a number of open space and recreational uses, and including uses such as the Buena Vista Creek Channel.

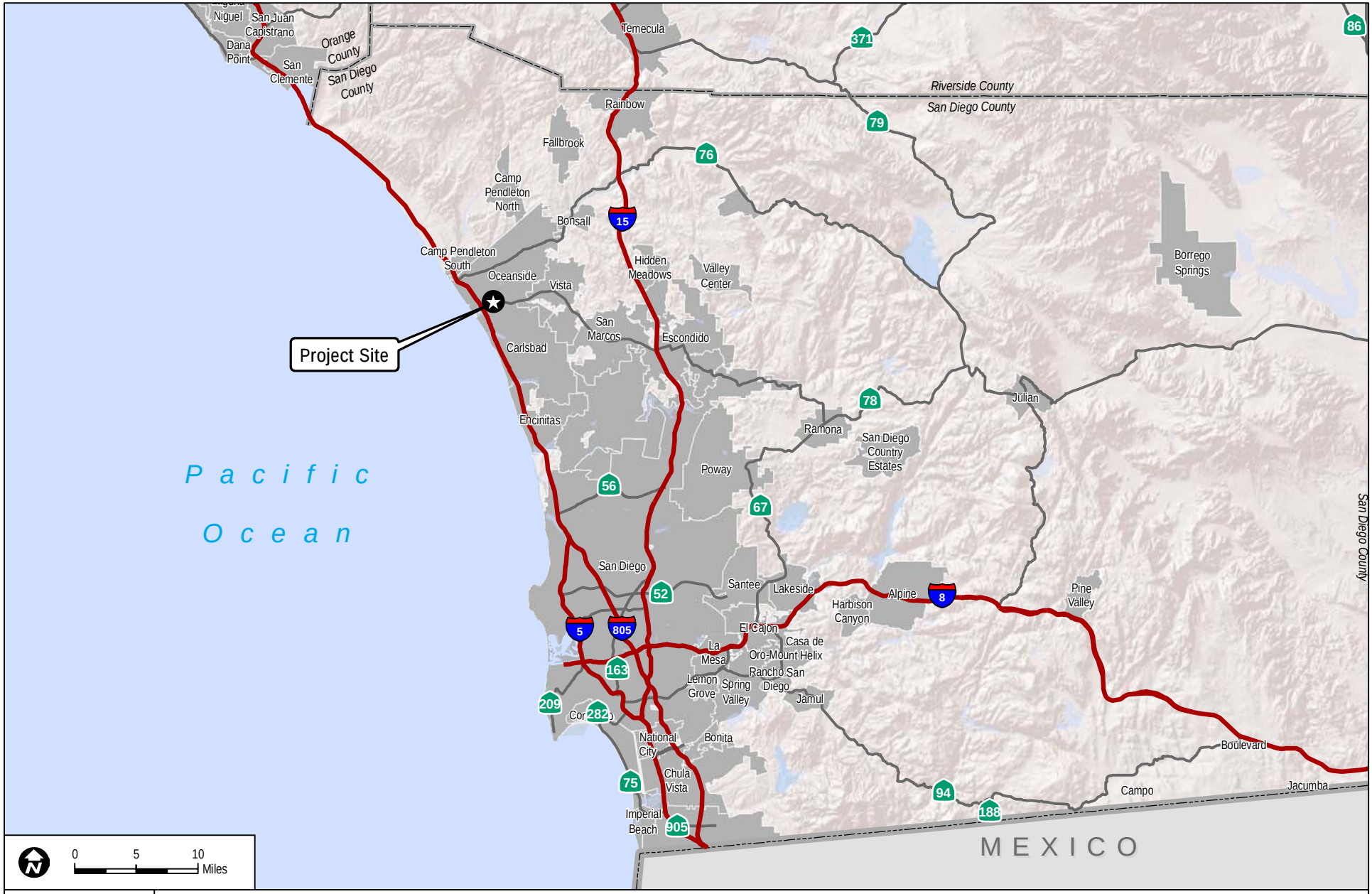

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FIGURE 2-1

Regional Map

BUENA VISTA CREEK CHANNEL MAINTENANCE PROJECT - ENVIRONMENTAL IMPACT REPORT

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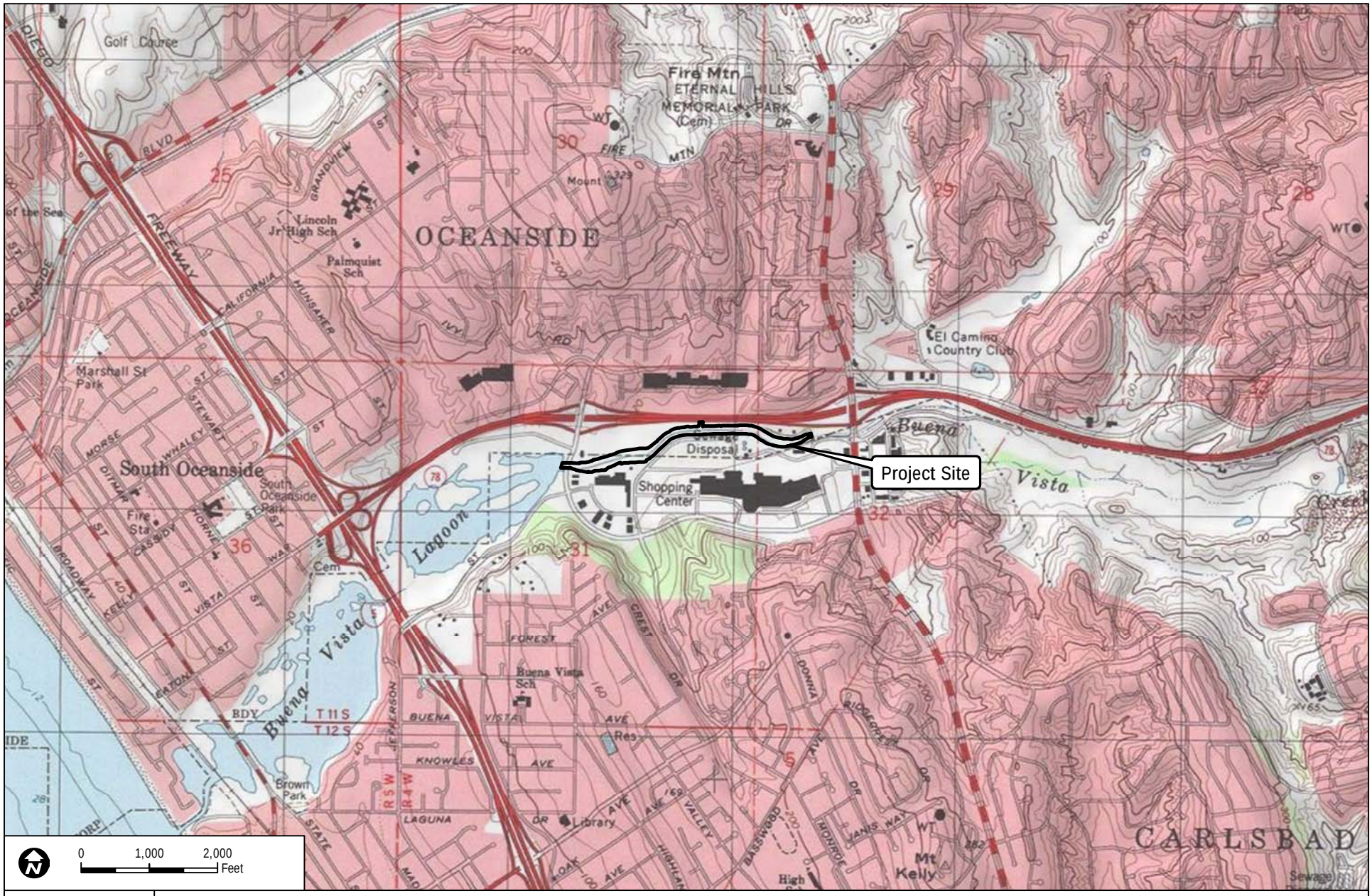

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SOURCE: USGS 7.5-Minute Series San Luis Rey Quadrangle.

FIGURE 2-2

Vicinity Map

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BUENA VISTA CREEK CHANNEL MAINTENANCE PROJECT - ENVIRONMENTAL IMPACT REPORT

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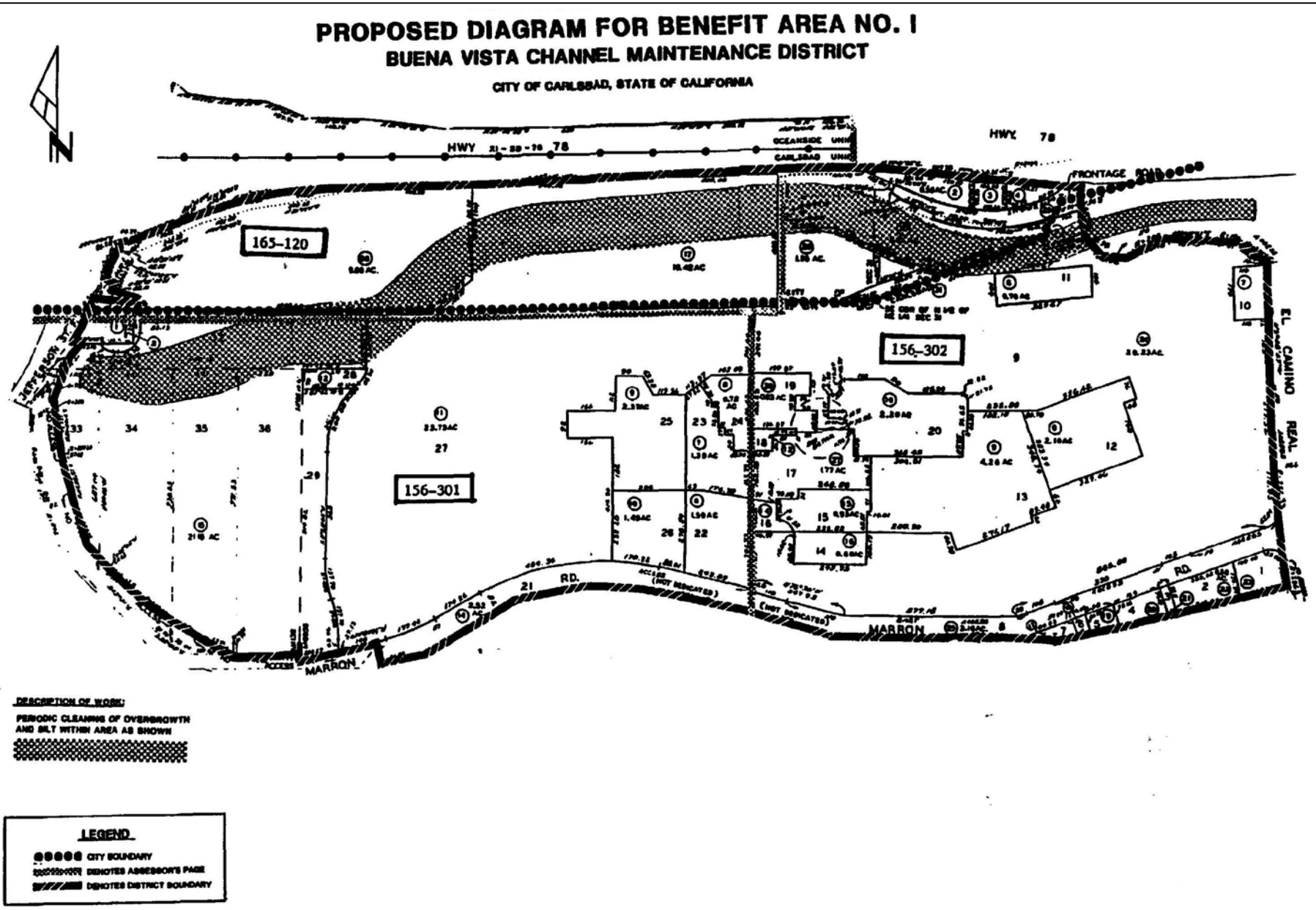

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SOURCE: City of Carlsbad, 1989.

FIGURE 2-3

Buena Vista Channel Maintenance District

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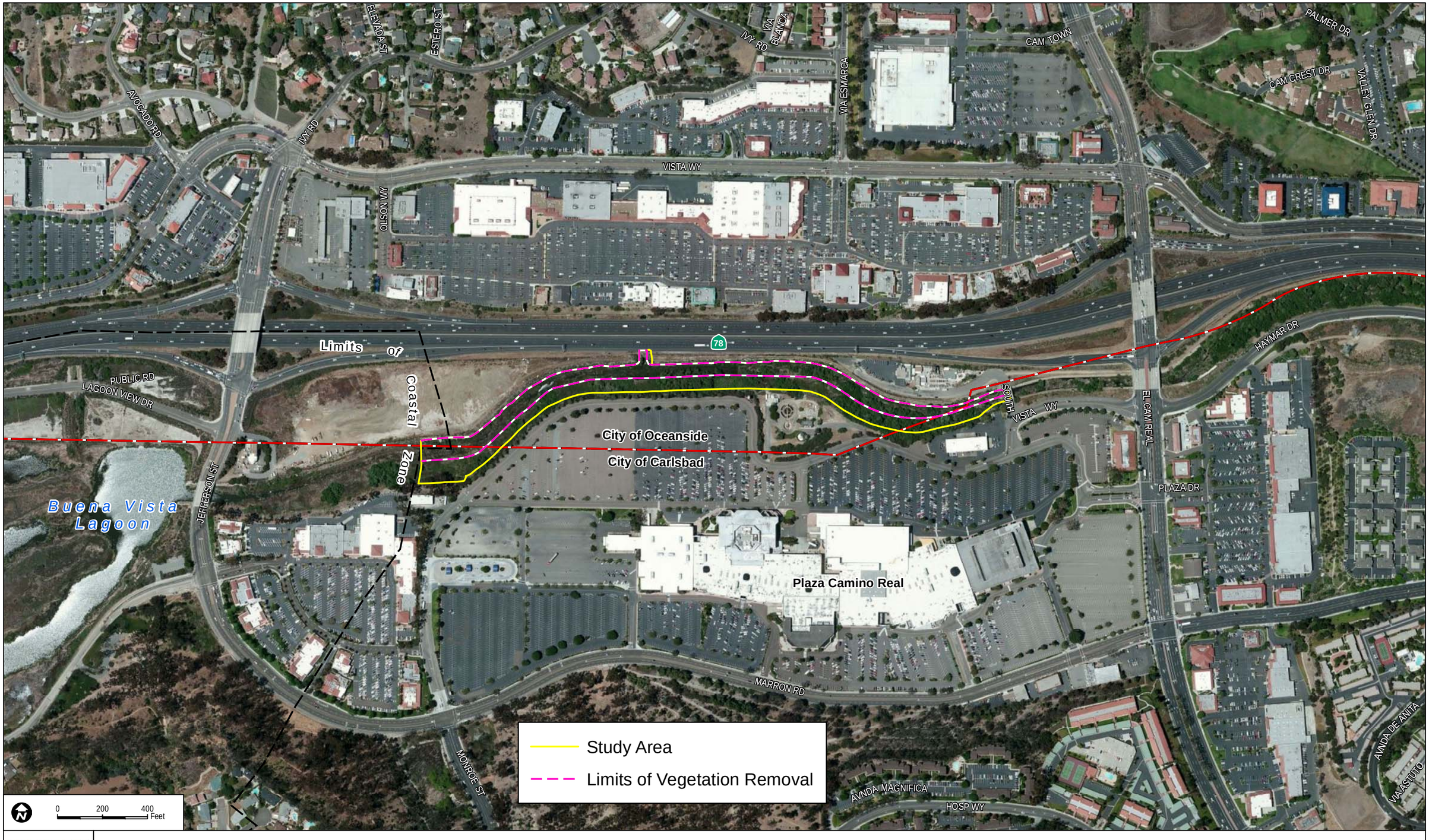

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AERIAL SOURCE: Bing Maps 2012; SanGIS 2012.

FIGURE 2-4

2003 PEIR Study Area

BUENA VISTA CREEK CHANNEL MAINTENANCE PROJECT - ENVIRONMENTAL IMPACT REPORT

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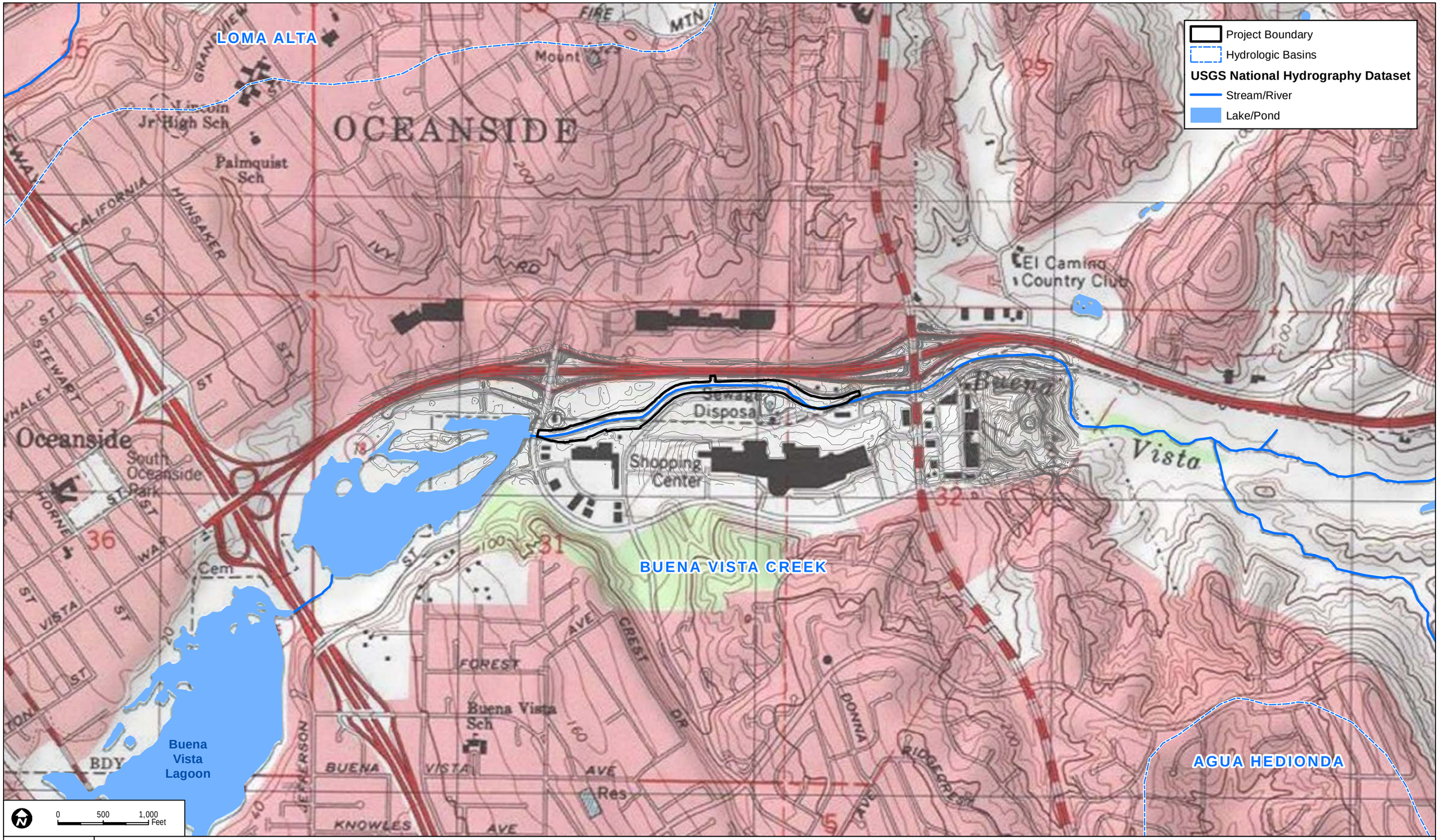

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SOURCE: USGS 7.5-Minute Series San Luis Rey Quadrangle; USGS NHD; SANDAG

FIGURE 2-5

Hydrologic Setting

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Carlsbad Habitat Management Plan

The Habitat Management Plan for Natural Communities in the City of Carlsbad (Carlsbad HMP) was approved in November of 2004. The Carlsbad HMP is a comprehensive, citywide program to identify how the City can preserve the diversity of habitat and protect sensitive biological resources within the City while allowing for additional development consistent with the City's General Plan and its Growth Management Plan (City of Carlsbad 2004b). The Carlsbad HMP identifies the vegetation along Buena Vista Creek as riparian scrub, woodland, and forest.

Based on existing distribution of vegetation communities and sensitive species, the Carlsbad HMP identified Focused Planning Areas (FPAs). The FPAs were further broken down into HMPs cores, linkages, and Special Resource Areas. The project site is located in Core 1 FPA, which is approximately 206 acres in area and consists of Buena Vista Lagoon and adjoining wetland and upland habitats in northwest Carlsbad (*Figure 2-6, Regulatory Setting*). No existing or proposed hardline preserves or special resource areas were identified for the proposed project site. According to the Carlsbad HMP, the project site is designated as a development area (City of Carlsbad 2004b, Figure 28).

Carlsbad Local Coastal Program

The California Coastal Act of 1976 provides coastal resource planning and management policies that serve as the basis for local coastal programs. The Coastal Act requires that policies be implemented through the preparation of a Local Coastal Program. The City of Carlsbad Local Coastal Program was established in 1996 and was most recently amended in 2006. The City of Carlsbad Local Coastal Program consists of the following five geographic areas: Agua Hedionda Lagoon, Carlsbad Mello I, Carlsbad Mello II, West Batiquitos Lagoon/Sammis Properties, and east Batiquitos Lagoon/Hunt Properties. The project site is located within the Carlsbad Mello II segment.

2.4.1.2 City of Oceanside

General Plan

The City of Oceanside General Plan is based on the community's vision for Oceanside and provides long-term direction for future growth and development. It includes 10 elements that outline specific policies and programs to help guide decision makers in the development process (City of Oceanside 2002, Intro/TOC pp. 1, 3).

The Land Use Element and Land Use Map within the General Plan provide the specific types of future land uses envisioned within the City of Oceanside (City of Oceanside 2002, Land Use Element p. 1). The Land Use Map designates the project site as Special Commercial (City of

Oceanside 2009a). According to Section 2.24 of the Land Use Element, areas designated as Special Commercial are "commercial sites within and/or adjacent to areas with unique characteristics, such as scenic areas, historic areas, freeway off-ramps, the Coastal Zone, and other unique or special areas" (City of Oceanside 2002, Land Use Element p. 50). Buena Vista Creek currently transverses the special commercial land use designated areas. Within the eastern portion of the project study area, a portion of the creek runs adjacent to SR-78. In addition, the western portion of the project site is located within the California Coastal Zone.

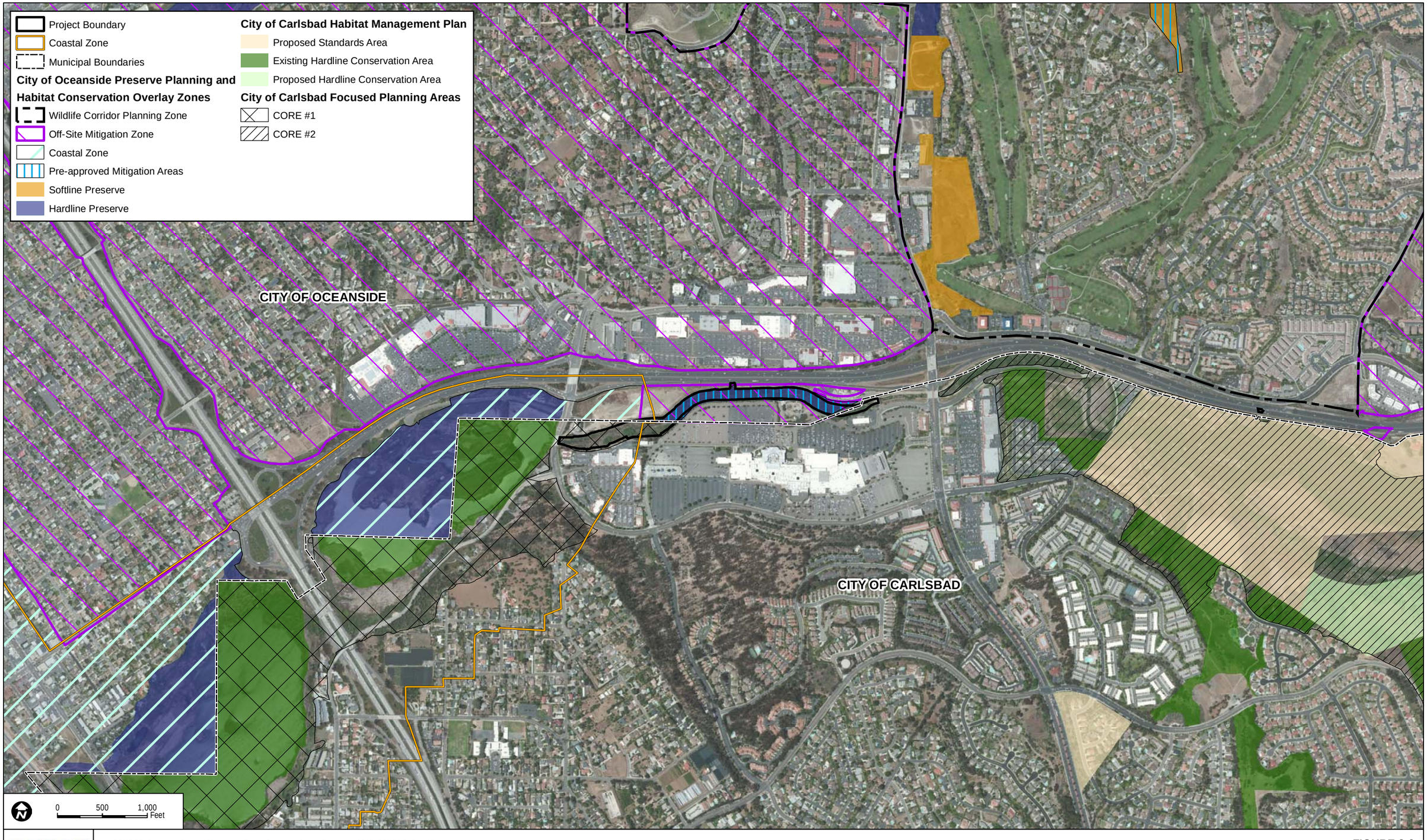
The General Plan also outlines several other policies concerning land designated as Special Commercial in Section 2.24 (City of Oceanside 2002, Land Use Element p. 50). Additional policies regarding land near Interstate 5, State Highway 76, and the SR-78 corridors are further detailed in Section 2.24 (City of Oceanside 2002, Land Use Element p. 51).

State Route 78 Urban Design Study

The Urban Design Study focuses on the visual experience of the freeway traveler on SR-78 between the Interstate 5 intersection to the west and the North Broadway intersection to the east in Escondido. The study provides the means to preserve or enhance the visual quality that encompasses the freeway corridor. The study includes landscape concepts and an urban design plan, as well as design guidelines for the properties adjacent to SR-78 right-of-way (City of Oceanside 2002, Circulation Element p. 3.).

Oceanside Subarea Habitat Conservation Plan/Natural Communities Conservation Plan

The Oceanside Subarea Habitat Conservation Plan/Natural Communities Conservation Plan (Oceanside Subarea Plan) outlines how the City of Oceanside will conserve natural communities as well as the plant and wildlife species that inhabit them (City of Oceanside 2009b, Section 1 p. 1). The Subarea Plan takes a comprehensive approach to protecting and managing ecological communities rather than a piecemeal strategy for species or isolated habitats as in the past (City of Oceanside 2009b, Section 1 p. 3). Approval and adoption of the Subarea Plan by the City is intended to lead to the issuance of permits from the U.S. Fish and Wildlife Service and CDFW (City of Oceanside 2009b, Section 1 p. 1). These permits would allow the City to authorize the taking of natural habitats and rare, threatened, or endangered species by projects within its jurisdiction, given that the projects are consistent with the Subarea Plan and that biological resources are adequately conserved or managed (City of Oceanside 2009b, Section 1 p. 1). The Subarea Plan's comprehensive and proactive approach will conserve resources more effectively while providing greater certainty for economic development (City of Oceanside 2009b, Section 1 p. 2).



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SOURCE: California Coastal Comission; City of Carlsbad; City of Oceanside 2012; SANDAG; Bing Maps

FIGURE 2-6

Regulatory Setting

BUENA VISTA CREEK CHANNEL MAINTENANCE PROJECT - ENVIRONMENTAL IMPACT REPORT

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According to the Oceanside Subarea Plan Generalized Planned Land Uses Map, the project site is designated as water surrounded by commercial uses (City of Oceanside 2009b, Figure 2-4). In addition, the Subarea Plan designates the project site as being located within a hardline preserve and a pre-approved Mitigation Area (see *Figure 2-6*) (City of Oceanside 2009b, Figure 4-1).

Zoning Ordinance

The Zoning Ordinance of the City of Oceanside states in Article 1 that its goal is the protection and promotion of the public health, safety, and general welfare, and the implementation of the City of Oceanside General Plan policies (City of Oceanside 1986, Article 1 p. 1).

The City of Oceanside's Zoning Map designates the project site as Special Commercial – Highway Oriented (CS-HO) (City of Oceanside 2009c). Article 11 of the Zoning Ordinance states that the Special Commercial district is intended to "provide opportunities for residential, commercial, public and semipublic uses appropriate for the special commercial areas identified by the General Plan" (City of Oceanside 1986, Article 11 p. 2). The Highway Oriented designation further indicates that the site is a highway-oriented commercial area (City of Oceanside 1986, Article 11 p. 2).

Buena Vista Creek current runs from east to west through the CS-HO designation. As discussed previously, the eastern portion of the creek within the project study area runs adjacent to SR-78 and the western portion of the creek within the project study area is within the coastal zone.

2.4.2 Regional Plans

2.4.2.1 San Diego Air Pollution Control District

The San Diego Air Pollution Control District (APCD) and San Diego Association of Governments (SANDAG) have jointly developed the San Diego Regional Air Quality Strategy (RAQS) to identify feasible emission control measures to achieve compliance with the state ozone standard. The RAQS addresses volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are the precursors to the photochemical formation of ozone. The last RAQS was initially adopted in 1991 and most recently amended in 2009. The San Diego APCD has also developed the air basin's input to the State Implementation Plan (SIP), which is required under the Federal Clean Air Act for areas that are out of attainment of air quality standards. The RAQS relies on information from the California Air Resource Board and SANDAG, including mobile area source emissions and information regarding projected growth in the County to project future emissions. The RAQS then determines the strategies necessary for reduction of emissions through regulatory controls. Since the project would be consistent with the City's General Plan, the project would not affect air quality planning assumptions of the RAQS and SIP.

2.4.2.2 Buena Vista Lagoon Watershed Sediment Control Plan

The Buena Vista Lagoon is California's first Ecological Reserve and is owned and managed by CDFW. Sedimentation has been a problem of the lagoon since the 1970s. In 1982, the California Coastal Conservancy began a sediment control program in the watershed, which included a review of sediment sources, a preliminary plan for sediment control measures, development of a model erosion control ordinance, and a proposal to establish a Joint Powers committee to coordinate activities in the watershed. The Joint Powers Committee was established by the cities of Carlsbad, Oceanside, and Vista in 1983, and the model erosion control ordinance was adopted by all three jurisdictions in 1984. The Conservancy completed a more detailed engineering analysis of watershed sediment control structures in September 1985. In 1987, the Conservancy approved the Buena Vista Lagoon Watershed Sediment Control Plan and authorized funding for construction of detention basins in the City of Vista.

2.4.2.3 Water Quality Control Plan for the San Diego Basin

The Environmental Protection Agency (EPA) has delegated responsibility for implementation of portions of the Clean Water Act (CWA) to the State Water Resources Control Board (SWRCB) and the RWQCBs, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) program. The NPDES program is a set of permits designed to implement the CWA that apply to various activities that generate pollutants with potential to impact water quality.

The RWQCB adopted a Water Quality Control Plan for the San Diego Basin (Basin Plan). This Basin Plan sets forth water quality objectives for constituents that could potentially cause an adverse effect or impact on the beneficial uses of water. The plan is designed to preserve and enhance the quality of water resources in the San Diego region. The purpose of the plan is to designate beneficial uses of the region's surface and ground waters, designate water quality objectives for the reasonable protection of those uses, and establish an implementation plan to achieve the objectives. The Basin Plan incorporates by reference all applicable SWRCB and RWQCB plans and policies.

Projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code and are required to obtain approval of Waste Discharge Requirements (WDRs) from the RWQCBs. During both construction and the operation, private and public development projects are required to include storm water best management practices (BMPs) to reduce pollutants discharged from the project site to the maximum extent practicable.

CHAPTER 3
PROJECT DESCRIPTION

This chapter describes the purpose and objectives of the proposed project and provides a detailed description of the project's major components. This chapter also lists the discretionary actions required to implement the project.

3.1 PURPOSE OF THE PROJECT AND OBJECTIVES

3.1.1 Purpose and Need for the Project

As described in *Section 2.2, Project Background*, in 2002 the City of Carlsbad evaluated the need, frequency, and methods to maintain Buena Vista Creek channel within the Buena Vista Channel Maintenance District (Maintenance District). Hydraulic studies were prepared to evaluate the flood control capacity within this portion of the stream channel, and it was determined that during a 100-year storm event, flows would overtop the channel banks and inundate the adjacent parking lots in the Maintenance District. In 2003, the City approved a Program Environmental Impact Report (PEIR) to implement an ongoing maintenance program to reduce flooding of the Maintenance District properties. The maintenance program, which was initiated in 2004, is still underway, consisting of hand removal of vegetation within the northern half of the channel between the South Vista Way bridge and the Coastal Zone boundary over a 5-year period (i.e., one-tenth of the channel each year) (*Figure 2-4, 2003 PEIR Study Area*). A Streambed Alteration Agreement (SAA) (#1600-2004-0006-R5) was issued by California Department of Fish and Wildlife (CDFW) on February 11, 2004. The SAA was extended on January 21, 2009, and is scheduled to terminate on December 31, 2013. In addition to implementation of the channel maintenance program, the Maintenance District has been monitoring and eradicating exotic plant species within the non-maintained, southern portion of the channel. Prior to implementation of the exotics removal program in the southern half of the channel, the area did not support breeding least Bell's vireo (*Vireo bellii pusillus*). During 2012 focused surveys for the species, least Bell's vireo were mapped in the southern willow scrub (Dudek 2012), indicating that the exotics removal program has increased the suitable breeding habitat for vireo.

Because the SAA terminates on December 31, 2013, the City reevaluated the need, frequency, and methods to maintain Buena Vista Creek channel within the Maintenance District through preparation of additional hydraulic studies (Chang Consultants 2013). Since the initiation of the channel maintenance program in 2004, the portion of the Buena Vista Channel Maintenance Project within the California Coastal Commission (CCC) zone, which has not been maintained since dredging in 1997, is starting to, at times, impede the channel outlet and upstream capacity (Chang Consultants 2013). In response, in 2012, the City commissioned an updated hydraulic study analyzing the removal of the vegetation from the northern half of the channel from the upstream face of Jefferson Street bridge, which is in the CCC zone, to the downstream face of South Vista Way bridge. The

goal of the analysis was to determine the amount of vegetation that needed to be removed over a specific period of time in order to provide flood protection benefits for the properties in the Maintenance District while maintaining biological functions and values within the creek.

On the northern bank of the channel, under existing conditions, a 100-year flood event would overtop the banks for a considerable channel length, and in order to provide 100-year flood projection, the levee would need to be improved and raised at least 3 feet. Similarly, on the southern side of the channel, the sewage treatment plant (located between Channel Stations 1.532 and 1.597, refer to *Figure 3-1, Proposed Maintenance Area*) is separated from the channel by a levee, which would need to be improved and raised at least 3 feet to provide 100-year flood protection of the treatment plant under existing conditions (Chang Consultants 2013). Improving and raising the levees in these areas is not within the scope of services provided by Maintenance District (City of Carlsbad 1989).

On the southern bank of the channel, without additional channel maintenance (i.e., existing conditions), overtopping of the banks during a 100-year flood event would occur just upstream of Channel Station 1.030 to Channel Station 1.174 and just upstream of Channel Station 1.296 to the South Vista Way bridge inundating the adjacent parking lot in the Maintenance District. The flood water from the parking lot carries pollutants into the creek, which adversely affects the water quality.

The 2012 hydraulic study also analyzed the level of flood protection provided if the entire 11.2-acre channel (both the northern and southern portions) was maintained annually. Under this scenario, the flows would overtop the northern channel banks near the Jefferson Street bridge and the Mohnacky Animal Hospital of Carlsbad. On the southern channel, the flows would overtop the banks by 0.1 feet at one channel station; thus, the flows would largely be contained within the southern channel banks if the entire channel was maintained annually. However, annual channel maintenance in the entire channel would not allow any portion of the channel to recover between maintenance years, and it would not completely avoid impacts to the freshwater marsh and the understory of southern willow scrub in the southern portion of the channel.

In order to allow for complete avoidance of the southern portion of the channel and for portions of the channel to recover between maintenance years, the hydraulic study analyzed various maintenance regimes to determine which regime would meet the project objectives of directly benefiting the Maintenance District, providing periodic clearing of the channel, and meeting the permitting requirements of the resource agencies. *Section 3.1.2* describes the project objectives, and *Chapter 7, Alternatives*, provides additional information on alternatives evaluated.

3.1.2 Project Objectives

The California Environmental Quality Act (CEQA) requires that an EIR include a statement of the project objectives (Section 15124(b) of the CEQA Guidelines). Project objectives for the proposed Buena Vista Creek Channel Maintenance Project are described below:

1. To maintain an ongoing, 20-year channel maintenance program that provides a direct benefit, such as flood control, to the properties and parcels in the Maintenance District boundaries (City of Carlsbad 1989).
2. Within the Maintenance District boundaries, provide periodic cleaning of the overgrowth and silt that impedes the free flow of water in the Buena Vista Creek channel (City of Carlsbad 1989).
3. To expand the current maintenance program downstream to include the portion of the Buena Vista Creek channel from Coastal Zone boundary downstream to the Jefferson Street bridge (i.e., from Channel Station 1.214 to Channel Station 1.030).
4. To obtain the required resource agency permits to continue maintaining the channel as required by the terms of the Maintenance District (City of Carlsbad 1989).
5. To maintain an ongoing channel maintenance program to provide flood protection within the Maintenance District boundaries while reducing impacts to biological resources.

3.2 PROJECT CHARACTERISTICS

Based on the results of the hydraulic study (Chang Consultants 2013), the proposed project is consistent with the current channel maintenance program. Specifically, the project proposes an ongoing maintenance program to continue to provide flood protection of the Maintenance District properties. The proposed maintenance program consists of hand removal of vegetation within the northern half of the channel between the South Vista Way bridge and the Jefferson Street bridge over a 5-year period (i.e., one-tenth of the channel each year) (see *Figure 3-1, Proposed Maintenance Area*). The 5-year maintenance regime would provide between 21-year flood protection in maintenance Year 1, and 41-year flood protection in Year 5. Between Channel Stations 1.135 and 1.336 and just downstream of the Vista Way bridge, the 5-year maintenance regime would provide 100-year flood protection and avoid inundating the adjacent parking lot in the Maintenance District with flood water. At other channel station locations, while a 5-year maintenance regime would not provide 100-year flood protection, the maintenance would reduce the amount of flooding. *Table 3-1, Comparison of Channel Banks Overflowing during a 100-Year Storm Event for No Maintenance and a 5-Year Maintenance Regime*, shows the potential flood level at the channel banks if no maintenance occurred in the channel. The table also shows the flood levels during Year 1 through Year 5 of a 5-year maintenance regime. Finally, Table 3-1 shows the difference between no maintenance and Year 1 through Year 5 of a 5-year maintenance regime. For example, at Channel Station 1.066, the channel would overtop the banks by 2.2 feet during a 100-year storm event if the channel were not maintained and by 0.5 feet during Year 1 of a 5-year maintenance regime. Therefore, in Year 1 of a 5-year maintenance regime, the surface elevation flooding would be reduced by 1.7 feet.

Table 3-1
Comparison of Channel Banks Overflow during a 100-Year Storm Event for No Maintenance and a 5-Year Maintenance Regime

Channel Station No.	No Maintenance (feet)	5-Year Maintenance Regime									
		After Year 1 (feet)	Year 1 Benefit over No Maintenance (feet)	Year 2 (feet)	Year 2 Benefit over No Maintenance (feet)	Year 3 (feet)	Year 3 Benefit over No Maintenance (feet)	Year 4 (feet)	Year 4 Benefit over No Maintenance (feet)	Year 5 (feet)	Year 5 Benefit over No Maintenance (feet)
1.066	2.2	0.5	1.7	0.6	1.6	0.6	1.6	0.6	1.6	0.7	1.6
1.100	2.6	1.1	1.5	1.3	1.4	1.3	1.3	1.4	1.2	1.4	1.2
1.373	1.0	0.1	0.8	-0.2	1.2	-0.5	1.5	-0.2	1.2	0.0	1.0
1.413	1.4	0.7	0.7	0.4	1.0	-0.3	1.7	0.1	1.3	0.3	1.1
1.454	1.8	1.2	0.6	0.9	0.9	0.1	1.7	0.3	1.6	0.6	1.3
1.498	1.6	1.0	0.5	0.8	0.8	0.1	1.4	-0.4	1.9	0.0	1.5
1.532	4.0	3.6	0.4	3.4	0.6	3.0	1.1	1.8	2.2	2.3	1.7
1.564	3.5	3.1	0.4	3.0	0.5	2.6	0.9	1.1	2.3	1.6	1.8
1.597	3.8	3.5	0.3	3.4	0.4	3.1	0.8	1.6	2.3	1.8	2.0
1.629	4.0	3.7	0.3	3.6	0.4	3.3	0.6	2.1	1.9	1.8	2.2
1.661	4.4	4.2	0.2	4.1	0.3	3.8	0.6	2.8	1.6	2.0	2.4
1.701	4.3	4.1	0.2	4.1	0.3	3.9	0.5	3.1	1.3	1.2	3.1

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SOURCE: CA Coastal Comission; SanGIS; Bing Maps

FIGURE 3-1

Proposed Maintenance Area

BUENA VISTA CREEK CHANNEL MAINTENANCE PROJECT - ENVIRONMENTAL IMPACT REPORT

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While hand removal of vegetation within one-half of the channel (northern portion of the channel) over a 5-year period (or one-tenth of channel annual) would not provide for 100-year flood protection for the properties and parcels within the Maintenance District, this maintenance regime would meet the goals and objectives of the project (*Section 3.1.2*), while avoiding and minimizing impacts to special-status biological resources in the channel and water quality. The vegetation removal would occur only in freshwater marsh and the understory of southern willow scrub; no trees, including riparian trees, would be removed during channel maintenance. Vegetation would not be removed between March 15 to September 15 to avoid impacts to most nesting birds in accordance with the Migratory Bird Treaty Act. Maintenance personnel would access the vegetation via a pontoon and would use non-mechanized equipment (such as machetes, knives, sickles, saws, hand shears and loppers) or when necessary mechanized equipment (such as weed whackers or chainsaws). Vegetation removal would occur at the end of the growing season/beginning of the dormant season (i.e., at the onset of cold weather). Vegetation would be cut at ground level or the water surface and be hauled out of the channel and disposed of appropriately. The below ground portions of the plants will remain in place and alive. No ground disturbance would occur during the removal of vegetation. An Exotic Species Control Plan will be prepared to specify the specific control method for each exotic species that could occur in the project area. The control methods generally include activities such as pulling the species or treating it with herbicides. Maintenance activities would occur over a very short duration, typically over a 4-week or less period per year, and approximately two to three maintenance vehicles would be on site during maintenance. For purposes of vegetation removal, as is currently practiced, maintenance vehicles would use the existing access road that runs parallel to the northern bank of the channel.

The City surveys the surface elevation of the channel every 4 years. The channel was most recently surveyed in 2012, and there has not been any significant accumulation of sediments in the study area portion of the Buena Vista Creek Channel (Melchior Land Surveying Inc. 2012). The City will continue to survey the surface elevation of the channel every 4 years to track channel bottom elevation changes due to increased silt. If the silt levels exceed 2 feet above the design elevations, as documented by the survey data, the City will consider maintenance dredging. However, it is not anticipated that silt levels will exceed 2 feet above the design elevations within this portion of the channel, nor is dredging addressed in this Supplemental EIR (SEIR).

The project will also include the following best management practices as project design features to protect water quality. These features include:

- Following label direction, applicable laws, regulations, and safety precautions.
- Not applying any pesticides to the water or during raining weather when there could potentially be runoff into the creek.

- Mixing the herbicide in small batches and applying by spot spraying the weeds using hand-held or backpack sprayers.
- The chemistry of the herbicides used for this project will consist of material that bonds to the soil particles or other organic matter that it comes into contact with.

3.3 DISCRETIONARY ACTIONS

The following actions would need to be taken by the City of Carlsbad City Council in order to implement the proposed project:

- SEIR Certification
- Adoption of Mitigation Monitoring and Reporting Program

Other Agency Approvals

Approval of the proposed project may be required by CDFW for an SAA, the CCC for a California Coastal Development Permit, and the Regional Water Quality Control Board for a Clean Water Act Section 401 and 404 permit.

CHAPTER 4
ENVIRONMENTAL ANALYSIS

4.1 BIOLOGICAL RESOURCES

This section evaluates the potential impacts of the proposed Channel Maintenance Plan on local and regional biological resources. The section discusses the existing biological resources at the project site and analyzes the potential direct and indirect impacts to biological resources and provides mitigation to reduce potential impacts to less than significant.

4.1.1 Methodology

Information regarding existing biological resources was obtained from the Buena Vista Creek Channel Maintenance Project Biological Resources Technical Report (referred to herein as the "Biological Technical Report") (Dudek 2012). The Biological Technical Report documented the biological resources that are present or have potential to occur in the project area and are recognized by local, state, or federal resource agencies as special-status or sensitive through the following: a literature review, a formal jurisdictional of waters and wetlands, vegetation community mapping, and focused surveys for special-status plant and wildlife species, including least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and light-footed clapper rail (*Rallus longirostris levipes*).

4.1.2 Existing Conditions

4.1.2.1 Vegetation Communities

The native vegetation communities on site are Diegan coastal sage scrub, mulefat scrub, southern willow scrub, freshwater marsh, southern coastal saltmarsh, and open water. The non-native, vegetative communities and land cover types (non-vegetated area) occurring within the project are ornamental and disturbed land. These vegetation communities and land cover types are described as follows; their acreages are presented in *Table 4.1-1, Vegetation Communities and Land Covers*; and their spatial distributions are presented on *Figure 4.1-1, Biological Resources Map with Proposed Maintenance*.

Table 4.1-1
Vegetation Communities and Land Covers

Habitat Types/Vegetation Communities	Habitat Group[1]	Existing Acreage[2]
Upland Scrub		
Diegan coastal sage scrub	C/D[3]	0.03
	Subtotal	*0.03*
Riparian/Water and Wetlands		
Mulefat scrub	A	0.63
Southern willow scrub	A	4.06

Table 4.1-1
Vegetation Communities and Land Covers

Habitat Types/Vegetation Communities	Habitat Group[1]	Existing Acreage[2]
Freshwater Marsh	A	5.90
Southern Coastal Saltmarsh	A	0.11
	Subtotal	*10.70*
Unvegetated Waters		
Open Water	A	0.17
	Subtotal	*0.17*
Non-Natural Land Covers		
Disturbed Land	F	0.20
Ornamental	N/A	0.03
	Subtotal	*0.23*
	Total	**11.15**

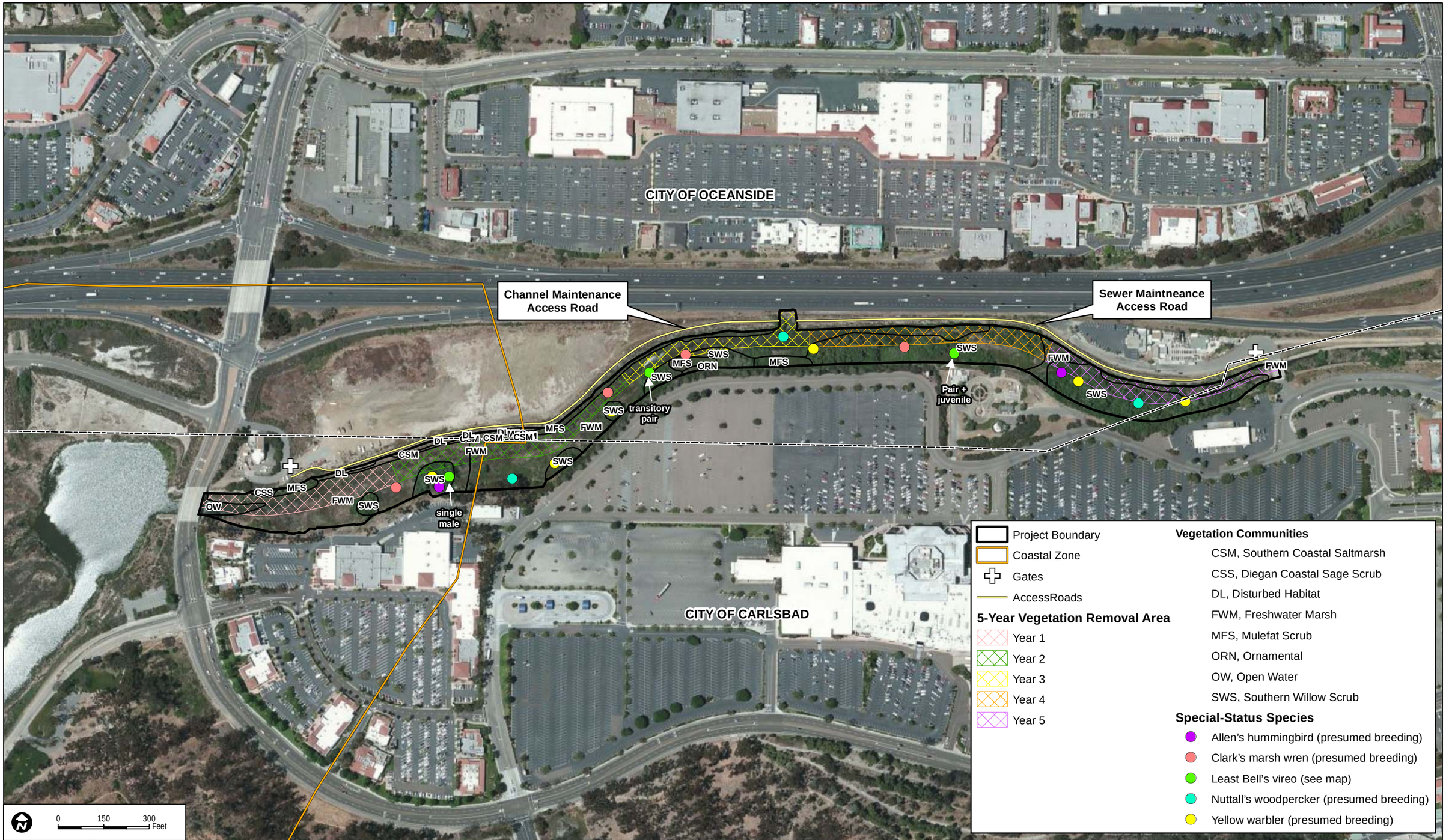
1 City of Carlsbad Habitat Management Plan (HMP) and City of Oceanside Subarea Plan Habitat Groups, a detailed discussion of the Habitat Groups is provided in Appendix C.
2 Totals may not add due to rounding.
3 Coastal sage scrub is in Habitat Group C in the City of Oceanside Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP), and unoccupied coastal sage scrub is in Habitat Group D in the City of Carlsbad HMP.

Diegan Coastal Sage Scrub

Diegan coastal sage scrub is described as a native plant community composed of a variety of soft, low, drought-deciduous shrubs, characteristically dominated by aromatic species such as California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), common deerweed (*Acmispon glaber* var. *glaber*), and sages (*Salvia* spp.); with scattered evergreen shrubs, including laurel sumac (*Malosma laurina*) and lemonadeberry (*Rhus integrifolia*). This community commonly occurs on xeric slopes or sites that contain very low moisture (Oberbauer et al. 2008).

On site, this community occurs in one patch located with the northwestern portion of the site composed of a narrow strip of coyote brush (*Baccharis pilularis*)-dominated coastal sage scrub (*Figure 4.1-1*).

Diegan coastal sage scrub does not fit into a specific alliance according to the California Department of Fish and Wildlife, formerly the California Department of Fish and Game (CDFG 2010), but the species that dominates this community (coyote brush) has an alliance in CDFW. Coyote brush scrub alliance has a rank of G5S5, meaning it is globally secure and secure in the state. Diegan coastal sage scrub is within Habitat Group D of the City of Carlsbad Habitat Management Plan (HMP) and Habitat Group C of the City of Oceanside Habitat Conservation Plan/Natural Communities Conservation Plan (HCP/NCCP), is considered a special-status vegetation community, and requires mitigation for impacts to this vegetation community.



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SOURCE: CA Coastal Comission; SanGIS; Bing Maps

FIGURE 4.1-1

Biological Resources Map with Proposed Maintenance

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Mulefat Scrub

Mulefat scrub is characterized as a successional herbaceous riparian plant community dominated by mulefat (*Baccharis salicifolia*) and may also contain various willows (Salix ssp.), stinging nettle (*Urtica dioica* ssp. *holosericea*), and Santa Barbara sedge (*Carex barbarae*) at low percent covers. This community is commonly found along intermittent stream channels, canyons, and catchment basins.

On site, this community is dominated by monotypic stands of mulefat and occurs in isolated patches along the northern and southern boundaries of the site (refer to *Figure 4.1-1*).

The *Baccharis salicifolia* alliance has a rank of G5S4 in CDFG (2010), meaning it is globally secure and apparently secure in the state. Mulefat scrub is within the Habitat Group A of the City of Carlsbad HMP and City of Oceanside HCP/NCCP, is considered a special-status vegetation community, and mitigation is required for impacts to this vegetation community.

Southern Willow Scrub

Southern willow scrub is described as a relatively dense broad-leafed, deciduous riparian thicket dominated by several willow species (*Salix gooddingii, S. lasiolepis, S. laevigata, S. lasiandra*). Emergent trees such as Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*) and California sycamore (*Platanus racemosa*) may also be present at a low cover, and due to the dense shrub canopy cover, the understory is sparse. This community is commonly found along intermittent stream channels and creeks that contain loose, sandy, or fine gravelly alluvial soils (Holland 1986).

On site, this community predominately occurs within the central and upstream portions of the site (refer to *Figure 4.1-1*). Southern willow scrub on site is co-dominant with narrowleaf willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), and arroyo willow (*Salix lasiolepis*). The understory is sparse, and no emergent trees are present.

Southern willow scrub does not fit into a specific alliance in CDFG (2010), but the willow species that comprise the southern willow scrub (narrowleaf willow, Goodding's willow, and arroyo willow) have alliances in CDFW. Narrowleaf willow alliance has a rank of G5S4, meaning it is globally secure and apparently secure in the state. Goodding's willow has a rank of G4S3, meaning it is apparently secure globally and is vulnerable to extirpation or extinction in the state. Arroyo willow has a rank of G4S4, meaning that it is apparently secure both globally and within the state. Southern willow scrub is within Habitat Group A of the City of Carlsbad HMP and City of Oceanside HCP/NCCP, is considered a special-status vegetation community, and requires mitigation for impacts to this vegetation community.

Freshwater Marsh

Freshwater marsh typically forms a completely closed canopy that is dominated by emergent perennial species and can reach up to 4 to 5 meters (13 to 16 feet) in height (Oberbauer et al. 2008). Species such as cattail (*Typha* ssp.), woolly sedge (*Carex lanuginosa*), yellow nutsedge (*Cyperus esculentus*), and bulrush (*Schoenoplectus* ssp.) commonly dominate the community. Freshwater marsh occurs in areas that are permanently flooded by fresh water including the slow-moving streams, ditches, and along the margins of lakes and contain an accumulation of deep, peaty soils.

On site, freshwater marsh is predominantly found in the downstream portion of the site where it receives flows from Buena Vista Lagoon to the west. Small patches also occur within the central and eastern portion of the site. On site, species found in the community include broadleaf cattail (*Typha latifolia*), chairmaker's bulrush (*Schoenoplectus americanus*), and Pacific swampfire (*Salicornia pacifica*).

Freshwater marsh does not fit into a specific alliance in CDFG (2010), but the species that comprise this community on site (broadleaf cattail, chairmaker's bulrush, and Pacific swampfire) have alliances in CDFW. Broadleaf cattail alliance has a rank of G5S5, meaning it is globally secure and secure in the state. Chairmaker's bulrush has a rank of G5S3, meaning it is secure globally and is vulnerable to extirpation or extinction in the state. Pacific swampfire has a rank of G4S3, meaning it is apparently secure globally and is vulnerable to extirpation or extinction in the state. Coastal and valley freshwater marsh is within Habitat Group A of the City of Carlsbad HMP and City of Oceanside HCP/NCCP, is considered a special-status vegetation community, and requires mitigation for impacts to this vegetation community.

Southern Coastal Saltmarsh

Holland (1986) defines southern coastal saltmarsh as a moderate-to-dense canopy that reaches 1 meter (3 feet) tall and is composed of a salt-tolerant herbaceous and subshrub layer (Holland 1986). Southern coastal saltmarsh is very similar to northern coastal saltmarsh; however, it differs in that it is characterized by warmer water and air temperatures. The upper, landward edges of the marshes are typically composed of Frankenia (*Frankenia* spp.), sea-blite or seepweed (*Suaeda* spp.), and/or pickleweed (*Salicornia subterminalis*), while Bigelow's pickleweed (*S. bigelovii*), Virginia pickleweed (*S. virginica*), and saltwort (*Batis maritima*) occur at middle elevations and cord grass (*Spartina* spp.) can be found closest to open water. Other species associated with southern coastal saltmarsh include Watson's saltbush (*Atriplex watsonii*), California box-thorn (*Lycium californicum*), and shoregrass (*Monanthochloe littoralis*). Southern coastal saltmarsh occurs at bays, lagoons, and estuaries along the coast (Holland 1986).

Southern coastal saltmarsh is predominantly found in the downstream portion of the site where it receives flows from Buena Vista Lagoon to the west. It occurs along the northern boundary of the site and includes Pacific swampfire, salt grass (*Distichlis spicata*), and black mustard (*Brassica nigra*).

Southern coastal saltmarsh does not fit into a specific alliance in CDFG (2010), but the species that comprise this community on site (Pacific swampfire) have alliances in CDFW. Pacific swampfire has a rank of G4S3, meaning it is apparently secure globally and is vulnerable to extirpation or extinction in the state. Southern coastal saltmarsh is within Habitat Group A of the City of Carlsbad HMP and City of Oceanside HCP/NCCP, is considered a special-status vegetation community, and requires mitigation for impacts to this vegetation community.

Open Water

Open water consists of bodies of fresh water (extremely low salinity) in the form of lakes, streams, ponds, or rivers (Oberbauer et al. 2008). Open water areas are aquatic areas that generally lack emergent vegetation, but typically support hydrophytic vegetation around their margins (e.g., mulefat scrub, southern willow scrub, freshwater marsh, or herbaceous wetland).

The open water area occurs in the downstream portion of the site. This area receives overflow from the Buena Vista Lagoon directly to the west.

Open water is not a vegetation community; therefore, it is not included in the List of California Vegetation Alliances and Associations (CDFG 2010). Open water is within Habitat Group A of the City of Carlsbad HMP and City of Oceanside HCP/NCCP, is considered a special-status vegetation community, and requires mitigation for impacts to this vegetation community.

Disturbed Land

Disturbed land refers to areas that have been permanently altered by previous human activity that has eliminated all future biological value of the land for most species. The native or naturalized vegetation is no longer present, and the land lacks habitat value for sensitive wildlife, including potential raptor foraging.

Disturbed land occurs within the north side of the downstream portion of the creek and consists of ruderal vegetation and ornamental species growing within the riprap.

Disturbed land is not included in the List of California Vegetation Alliances and Associations (CDFG 2010). Disturbed land is within Habitat Group F of the City of Carlsbad HMP and City of Oceanside HCP/NCCP. This community is not considered a special-status vegetation community; however, impacts to this land cover may be subject to a Habitat Mitigation Fee.

Ornamental Plantings

Ornamental plantings refer to areas where non-native ornamentals and landscaping have been installed. Ornamental plantings are not regulated by the environmental resource agencies and do not require mitigation.

Ornamental plantings occur in one patch located at the south central portion of the site. These plantings are associated with the landscaping for the Plaza Camino Real and North County Plaza shopping center.

Disturbed land is not included in the List of California Vegetation Alliances and Associations (CDFG 2010). Since it is dominated by non-native vegetation ornamental plantings, ornamental is not included in any of the Habitat Groups described in the City of Carlsbad HMP and City of Oceanside HCP/NCCP, indicating that it has limited habitat value.

4.1.2.2 Wildlife

The project area supports habitat for common riparian species. Wetland features within the project area provide habitat for riparian bird species, amphibians, and invertebrate species. There were 76 wildlife species observed on the project site. A list of the wildlife species observed within the project area during focused bird surveys, vegetation mapping, and rare plant surveys is provided as Appendix B of the BTR.

Two reptile species were observed within and adjacent to the project area during 2011/2012 surveys: side-blotched lizard (*Uta stansburiana*) and western fence lizard (*Sceloporus occidentalis*). No amphibian species were documented within the project area during 2011/2012 surveys, but common amphibian species that could occur on site include tree frogs (*Pseudacris* spp.) and western toad (*Anaxyrus boreas*). Common reptile species that likely occur in the project area include common garter snake (*Thamnophis sirtalis*) and pond slider (*Trachemys scripta*).

Sixty-four bird species were detected during the biological surveys. Common species observed within the project area include mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), song sparrow (*Melospiza melodia*), Anna's hummingbird (*Calypte anna*), common yellowthroat (*Geothlypis trichas*), and black phoebe (*Sayornis nigricans*).

Three mammal species were detected (directly or indirectly) within the project area during biological surveys, including coyote (*Canis latrans*), California ground squirrel (*Spermophilus beecheyi*), and long-tailed weasel (*Mustela frenata*). Bats occur throughout most of Southern California and may use any portion of the project area as foraging habitat.

Seven invertebrates were observed on the project site, including western tiger swallowtail (*Papilio rutulus*), orange sulphur (*Colias eurytheme*), and mourning cloak (*Nymphalis antiopa*).

No fish species were documented in the project area during 2011/2012 surveys.

4.1.2.3 Special Status Species

Special-Status Vegetation Communities

Special-status vegetation communities are those that are considered a sensitive natural community by CDFW (CDFG 2010) and/or that require mitigation, and thus considered sensitive, pursuant to the Carlsbad HMP and/or the Oceanside HCP/NCCP. Vegetation communities that occur on site that are considered sensitive include Diegan coastal sage scrub, freshwater marsh, southern coastal salt marsh, southern willow scrub, mulefat scrub, and open water.

Special-Status Plant Species

Special-status plant surveys were conducted to determine the presence or absence of plant species that are considered endangered, rare, or threatened under CEQA Guideline 15380 (14 CCR 15000 et seq.). No special-status plant species were identified during the focused survey conducted in May 2012. Additionally, there are no special-status plant species with a moderate or high potential to occur within the project study area. The Biological Technical Report lists the special-status plant species that are either not expected to occur or have a low potential to occur (Dudek 2012).

Special Status Wildlife Species

During field surveys, five special-status wildlife species were observed including: least Bell's vireo, a federally and state-listed endangered species, Birds of Conservation Concern (BCC) species, and covered species by the Carlsbad HMP and Oceanside HCP/NCCP; yellow warbler (*Setophaga petechia*), a BCC and California Species of Special Concern (SSC) species; Clark's marsh wren (*Cistothorus palustris clarkae*), an SSC species; Allen's hummingbird (*Selasphorus sasin*), a BCC species; and Nuttall's woodpecker (*Picoides nuttallii*), a BCC species. However, the light-footed clapper rail and southwestern willow flycatcher were not observed during focused surveys. The special-status wildlife species that have a potential to occur on site based on a literature review are provided in the Biological Technical Report (Dudek 2012).

Least Bell's vireo

Least Bell's vireo is a federally and state-listed endangered species, a BCC species, and is covered under both the Carlsbad HMP and the Oceanside HCP/NCCP. Least Bell's vireos primarily occupy riverine riparian habitats along water, including dry portions of intermittent

streams that typically provide dense cover, often adjacent to a complex, stratified canopy. Least Bell's vireo nesting habitats in cismontane and coastal areas include southern willow scrub, mulefat scrub, arroyo willow riparian forest edge, wild blackberry thickets, and, more rarely, cottonwood forest, sycamore alluvial woodland, and southern coast live oak riparian forest.

Focused surveys for least Bell's vireo were conducted in 2012. There are approximately 4.7 acres of suitable habitat for least Bell's vireo in the project area (southern willow scrub and mulefat scrub). Least Bell's vireo was documented during all survey visits. In total during all surveys, one pair and one male were mapped in southern willow scrub-dominated vegetation along the Buena Vista Creek channel on site (*Figure 4.1-1*). The pair of vireos was observed in the easternmost portion of the creek channel. The pair was observed foraging with a juvenile. One juvenile was confirmed; however, others could have been present and not detected due to the density of vegetation. The single male was observed within a willow patch that is both on and off site. Another pair was observed during the May 15 survey only.

Other Riparian Bird Species

Yellow warbler is a BCC and SSC species. It is not included in the covered species under either the Carlsbad HMP or the Oceanside HCP/NCCP. Six yellow warblers were observed during the least Bell's vireo/southwestern willow flycatcher surveys (refer to *Figure 4.1-1*). These birds are likely nesting in the project area.

Clark's marsh wren is an SSC species. It is not included in the covered species under either the Carlsbad HMP or the Oceanside HCP/NCCP. Four wrens were observed during the least Bell's vireo/southwestern willow flycatcher surveys (refer to *Figure 4.1-1*). These birds are likely nesting in the project area.

Allen's hummingbird and Nuttall's woodpecker are BCC species; they are not included in the covered species under either the Carlsbad HMP or the Oceanside HCP/NCCP. Nuttall's woodpecker could nest in cavities of the larger trees. Allen's hummingbirds were observed throughout the surveys and are likely nesting in or near the project area (refer to *Figure 4.1-1*).

Critical Habitat

There is no USFWS-designated critical habitat within or adjacent to the project site.

Jurisdictional Waters of the U.S.

A jurisdictional delineation was performed by Dudek in 2011, which concluded there are approximately 10.87 acres of jurisdictional wetlands and waters within the project site. This is comprised of approximately 7.38 acres of U.S. Army Corps of Engineers (ACOE), Regional

Water Quality Control Board (RWQCB), and CDFW jurisdictional waters; approximately 3.11 acres of ACOE, RWQCB, CDFW, and California Coastal Commission (CCC) jurisdictional waters; 0.29 acre of wetlands under the jurisdiction of CDFW only was also mapped; and approximately 0.09 acre of wetlands under the jurisdiction of CDFW and CCC were mapped (see *Table 4.1-2, Jurisdictional Wetland Delineation Summary*).

Table 4.1-2
Jurisdictional Wetland Delineation Summary

Jurisdiction	Vegetation Community	Acreage
ACOE, RWQCB, CDFW Wetlands	Freshwater marsh	3.43
	Mulefat scrub	0.25
	Southern willow scrub	3.70
	Southern coastal saltmarsh	less than 0.01
	ACOE, RWQCB, CDFW Subtotal	*7.38*
ACOE, RWQCB, CDFW, CCC Wetlands	Freshwater marsh	2.47
	Southern willow scrub	0.36
	Southern coastal saltmarsh	0.11
	Open water	0.17
	ACOE, RWQCB, CDFW, CCC Subtotal	*3.11*
CDFW Only Wetlands	Mulefat Scrub	0.29
	CDFW Subtotal	*0.29*
CDFW, CCC Wetlands	Mulefat Scrub	0.09
	CDFW, CCC Subtotal	*0.09*
	Grand Total	**10.87**

Source: Dudek 2012

Figure 4.1-2, Jurisdictional Delineation Map with Proposed Maintenance, shows the distribution of jurisdictional wetlands in the study area. The waters and wetlands on the site are associated exclusively within the Buena Vista Creek channel along the project site. Buena Vista Creek flows east to west towards Buena Vista Lagoon and the Pacific Ocean which is approximately 1.5 miles west.

4.1.2.4 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the immigration and emigration of animals. Habitat linkages may function as wildlife corridors for some species and permanent habitats for others. Wildlife corridors and habitat linkages contribute to population viability in several ways: (1) they assure the continual exchange of genes between populations which helps maintain genetic diversity; (2) they provide access to adjacent habitat areas representing additional territory for foraging and mating; (3) they allow for a greater carrying capacity of species populations; and (4) they provide routes for

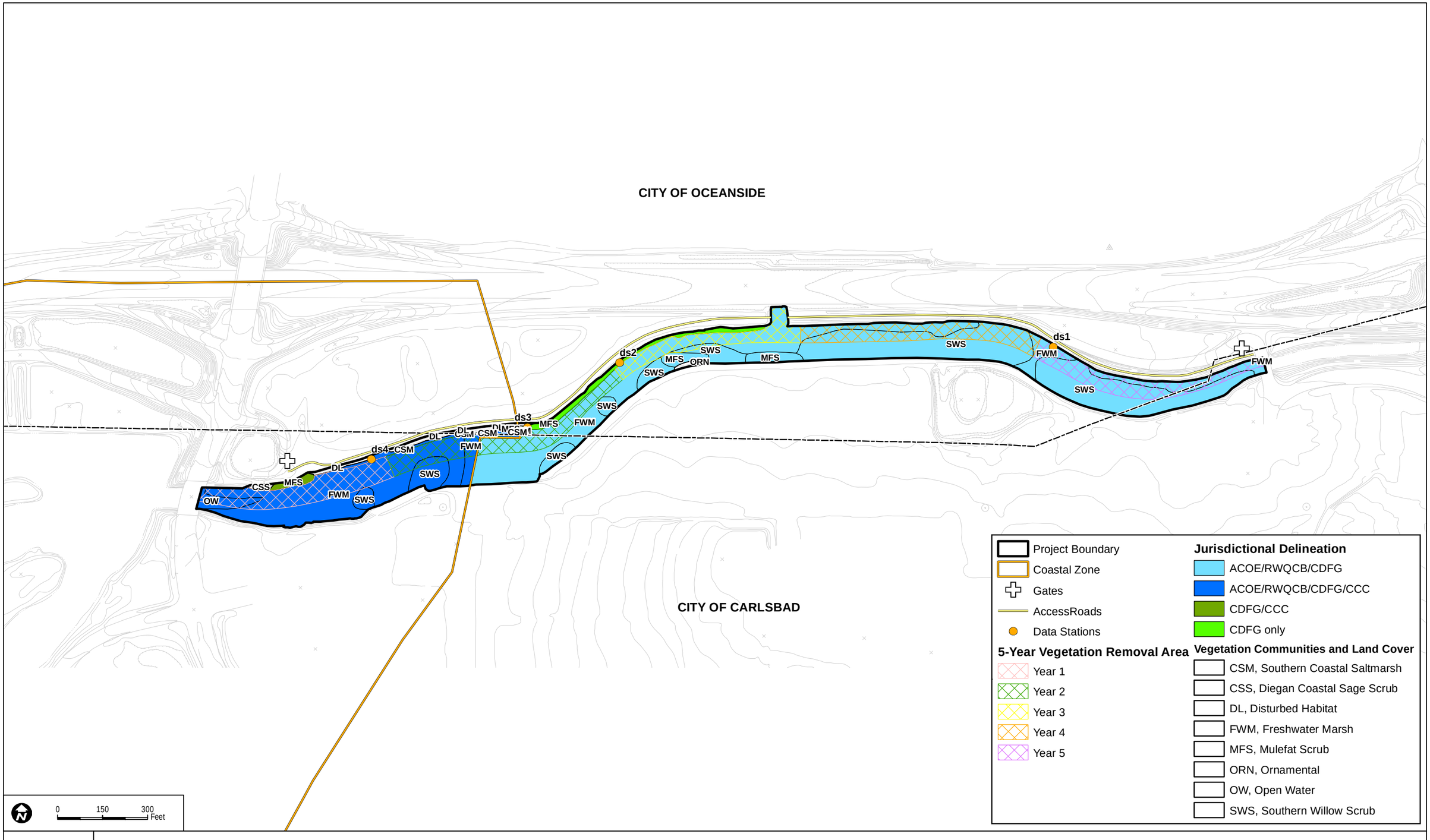
colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (e.g., fires). Wildlife crossings are locations where wildlife must pass through physically constrained environments (e.g., roads, development) during movement within home ranges or during dispersal or migration between core areas of suitable habitat.

Within the project area, wildlife movement is restricted through the site because SR-78 occurs north of the site and Jefferson Street occurs to the west. There is also chain-link fencing along these areas. General wildlife movement could occur in the riparian corridor in Buena Vista Creek which leads to the Buena Vista Lagoon to the west. To the east, the riparian corridor leads to open space east of S. El Camino Real. Large mammals such as mule deer (*Odocoileus hemionus*) and mountain lion (*Puma concolor*) would not be expected to occur in this area due to the narrow corridor and urban surroundings. The project area could be considered a part of a larger habitat linkage as defined above, because it supports natural habitat mosaic and may support viable populations of smaller terrestrial species, such as rodents, smaller carnivores (raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), and rabbits (*Sylvilagus* spp.)), passerine birds, amphibians, reptiles, and invertebrates.

Because of the variety of riparian habitats in the project area (e.g., southern willow scrub, mulefat scrub, and freshwater marsh), birds and other species use this as a local wildlife corridor between the Buena Vista Lagoon and inland riparian areas.

City of Carlsbad HMP – The project area is located in between Core 1 and Core 2 Focused Planning Areas (FPAs) identified in the Carlsbad HMP (City of Carlsbad 2004, Figure 2-6). The Core 1 FPA consists of Buena Vista Lagoon and adjoining wetland and upland habitats in northwest Carlsbad. Core 1 is connected to Core 2 via Buena Vista Creek (a part of which is located in the City of Oceanside). The creek is channelized between these two Cores; however, a continuous strip of riparian scrub remains, except where El Camino Real crosses the creek. According to the HMP, "this extremely narrow strip of riparian habitat may function as a wildlife movement corridor for some birds and mammals, including coyotes, but it is not considered a landscape level linkage."

City of Oceanside Subarea Plan – The Oceanside Subarea Plan evaluated corridors within the Oceanside subarea which were used to supplement the Multiple Habitat Conservation Program's (MHCP's) (SANDAG 2003) Biological Core and Linkage Area analysis. The Oceanside Subarea Plan identifies Wildlife Corridor Planning Zones in the Oceanside subarea; however, the project area is not located within these corridors (City of Oceanside 2009).



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SOURCE: California Coastal Comission; SanGIS; Bing Maps

FIGURE 4.1-2

Jurisdictional Delineation Map with Proposed Maintenance

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4.1.2.5 Regional Resource Planning Context

The proposed project study area is located within the North County MHCP, which is a long-term regional conservation plan established to protect sensitive species and habitats in northern San Diego County. The MHCP is divided into seven subarea plans—one for each jurisdiction within the MHCP—that are permitted and implemented separately from one another. The City of Carlsbad is the only city under the MHCP that has an approved and permitted subarea plan (i.e., the City of Carlsbad HMP). A draft City of Oceanside HCP/NCCP has been prepared and is used as a guidance document for projects in the City of Oceanside, but the subarea plan has not been approved or permitted.

Within the City of Carlsbad, one-third of the downstream portion of the proposed project study area lies within the FPA HMP Core Number 1. FPA HMP Core Number 2 is upstream of El Camino Real outside of the proposed project study area (refer to Figure 2-6). Using the Focus Planning Areas as a foundation, the HMP identified a preserve system that includes existing and proposed hardline preserve areas and standards areas. The project study area is not within an existing or proposed hardline preserve area or standards areas (refer to Figure 2-6) and, thus, was not targeted for conservation (City of Carlsbad 2004).

Within the City of Oceanside, a portion of the channel is within a Pre-approved Mitigation Area of Off-site Mitigation Zone identified as a "hardline" preserve, as described in the Oceanside HCP/NCCP (City of Oceanside 2009b). While the proposed project is not a development project, the Oceanside HCP/NCCP states that development is allowed in Pre-approved Mitigation Areas, subject to planning guidelines to avoid, minimize, and fully mitigate impacts. The Oceanside HCP/NCCP also states that at least 50% of a parcel located within a Pre-approved Mitigation Area must be conserved as biological open space, and no more than 25% impact to coastal sage scrub habitat will be allowed. Unavoidable impacts within Pre-approved Mitigation Areas may be mitigated by on-site habitat protection and management, or off-site protection within a Pre-approved Mitigation Areas or within the Wildlife Corridor Planning Zone. Because the Pre-approved Mitigation Areas are within Off-site Mitigation Zone, impacts to biological resources within this zone must be mitigated within the Wildlife Corridor Planning Zone or Pre-approved Mitigation Areas (City of Oceanside 2009b).

4.1.3 Criteria for Determining Significance

For this analysis, the following are criteria for determining the significance of an impact, based on the City of Carlsbad's significance criteria. Would the project:

1. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

2. Have a substantial adverse effect on any riparian, aquatic or wetland habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
3. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
4. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

4.1.4 Impact Analysis

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

No special-status plant species were observed on site. Additionally, there are no special-status plant species with a moderate or high potential to occur within the project study area. Therefore, no impacts will occur to special-status plant species.

Permanent Impacts

The project proposes a maintenance program to provide flood protection along Buena Vista Creek by removing vegetation within the northern channel. Specifically, the maintenance program proposes hand-removal (e.g., machetes and scythes) and if necessary hand-held mechanized tools (e.g., chainsaws) of no more than one-fifth of freshwater marsh and understory of the southern willow scrub within the northern channel within the project area (i.e., one-tenth of the entire channel) each year. Workers would access the vegetation by pontoons. Vegetation would be cut at the base level or the water surface and be hauled out of the channel and disposed of appropriately. No trees, including riparian trees, will be removed during the maintenance activity. Freshwater marsh habitat typically passively revegetates within 6 months of being removed and can often function as suitable habitat the summer after being removed. In addition, only 10% of the channel would be maintained in any given year. Therefore, the proposed maintenance project would not result in permanent direct impacts to habitat for candidate, sensitive, or special-status species.

Nesting birds would not be directly impacted because the vegetation removal activities would not occur during the breeding season for special-status bird species observed or with a moderate to high potential to occur on the project site (March 15 through September 15). Therefore, impacts to nesting individuals or young in nests would be avoided. Based on the minimal impacts to vegetation each year (between 0.77 acre and 1.20 acres per year) and the fact that vegetation would be removed by hand, impacts to individual special-status amphibians or reptiles are not expected. With respect to loss of individual special-status mammals, the proposed project would not result in impacts to coastal sage scrub; therefore, no impacts to Dulzura pocket mouse (*Chaetodipus californicus femoralis*) are anticipated. Bats would continue foraging over the project area once maintenance activities are initiated and, therefore, would not be impacted by the proposed project.

Temporary Impacts

Direct Impacts to Special-Status Wildlife Species

Temporary direct impacts to special-status species with a moderate or high potential to occur or that have been observed on site, are described below by the species' habitat association.

Riparian Woodland/Scrub Bird Species

Temporary direct impacts to special status wildlife species that breed and/or forage in freshwater marsh would primarily result from vegetation removal activities within the proposed vegetation removal areas. In addition, clearing or trampling of vegetation communities outside the proposed impact limits could occur. These potential effects could reduce suitable habitat for wildlife species and alter their ecosystems, which would create gaps in vegetation that allow exotic, non-native plant species to become established.

The least Bell's vireo, yellow warbler, Nuttall's woodpecker and Allen's hummingbird were observed in the project area and could potentially nest in the southern willow scrub on site. Additional species that have moderate or high potential to nest, forage, and/or winter in southern willow scrub within the project area include: Cooper's hawk (*Accipiter cooperii*; CDFW Watch List (WL); covered under the Carlsbad HMP and Oceanside HCP/NCCP), white-tailed kite (*Elanus leucurus*; CDFW fully protected (FP)), southwestern willow flycatcher; Federal and State Endangered; covered under the Carlsbad HMP and Oceanside HCP/NCCP), merlin (*Falco columbarius*; CDFW WL), yellow-breasted chat (*Icteria virens*; CDFW SSC; covered under the Carlsbad HMP and Oceanside HCP/NCCP), and western bluebird (*Siala mexicana*; covered under the Oceanside HCP/NCCP).

The project proposes to thin and remove the vegetation in the understory of southern willow scrub, but there would not be any removal of willows as part of the proposed project. Therefore, there are no direct impacts to suitable habitat for these species.

Freshwater Marsh and Other Wetland Habitat Bird Species

Clark's marsh wren (CDFW SSC) was observed during 2012 surveys and are likely nesting in the project area. Focused surveys for light-footed clapper rail (Federal and State Endangered; USFWS BCC; CDFW FP; covered under the Carlsbad HMP and Oceanside HCP/NCCP) were conducted in 2012 and were negative, but this species has been documented nesting in Buena Vista Lagoon, and there is suitable freshwater marsh habitat in the project area. The light-footed clapper rail has a moderate potential to forage in the freshwater marsh and southern coastal saltmarsh habitat within the project area.

While not observed, least bittern (*Ixobrychus exilis*; USFWS BCC; CDFW SSC) has a moderate potential to nest and/or forage in the freshwater marsh and southern coastal saltmarsh habitat within the project site. In addition, northern harrier (*Circus cyaneus*; CDFW SSC) was not observed during the 2012 surveys, but there is moderate potential for this species to nest in some of the freshwater marsh habitat on site.

There are temporary direct impacts to 3.67 acres of freshwater marsh over the five-year maintenance cycle, with a range of 0.43 acres to 1.15 acres of impact per year, depending on the maintenance year. *Figure 4.1-1* shows which areas would be impacted each year during the 5-year cycle. Freshwater marsh habitat typically revegetates within 6 months of being removed and can often function as suitable habitat the summer after being removed. The maintenance activities would not result in direct impacts to southern coastal saltmarsh habitat. Also, while the impacts to open water are quantified because it lies within the delineated vegetation removal area, no vegetation removal would occur in areas of open water.

Direct temporary impacts to special-status wildlife species that breed and/or forage in freshwater marsh (Clark's marsh wren, least bittern, and northern harrier) or that have the potential to use freshwater marsh (light-footed clapper rail) are considered a significant impact. Implementation of Mitigation Measure BIO-1 (in *Section 4.1.5*) would reduce potential impacts to these sensitive species to less than significant.

Special-Status Amphibians and Reptiles

Although no special-status amphibians or reptiles were observed during the 2012 surveys, the following species have high potential to occur in the project area: western spadefoot (*Spea hammondi*; CDFW SSC; covered under the Oceanside HCP/NCCP), two-striped garter snake (*Thamnophis hammondii*; CDFW SSC), and South Coast garter snake (*Thamnophis sirtalis* ssp.; CDFW SSC).

These species can occur in the habitats that would be directly impacted by the project (Table 4.1-1), including southern willow scrub, freshwater marsh, and open water. Based on the minimal impacts to vegetation each year (between 0.77 acre and 1.20 acres per year) and the fact that vegetation would be removed by hand, impacts to suitable habitat would be less than significant for these species.

Special-Status Mammals

Dulzura pocket mouse (CDFW SSC) has moderate potential to occur in limited riparian-scrub ecotone habitat in the project area (i.e., coastal sage scrub). Pallid bat (*Antrozous pallidus*; CDFW SSC) and western mastiff bat (*Eumops perotis californicus*; CDFW SSC) have moderate potential to forage within the project area. However, the project would not result in impacts to coastal sage scrub; therefore, no impacts to suitable habitat for Dulzura pocket mouse would result.

Additionally, direct, temporary impacts could occur from removal or trampling of suitable habitat for special-status wildlife outside designated work zones. This is considered a potentially significant impact, and implementation of Mitigation Measure BIO-2 (see *Section 4.1.5*) would reduce impacts to less than significant.

Indirect Impacts to Special-Status Wildlife Species

Short-term or temporary indirect impacts to special-status wildlife species would primarily result from vegetation removal activities. Potential temporary indirect impacts could also occur as a result of fugitive dust, noise, chemical pollutants, increased human activities, and non-native animal species. Impacts to all special-status wildlife species observed or with a moderate to high potential to occur on site would be considered significant, and implementation of Mitigation Measure BIO-2 (*Section 4.1.5*) would reduce potential impacts to less than significant.

Also, in order to avoid temporary indirect impacts to nesting birds, the proposed maintenance activities would need to be restricted to occur outside of the nesting season. Therefore, implementation of Mitigation Measure BIO-3 would avoid potential temporary indirect impacts to nesting birds.

Long-term or permanent indirect impacts to special-status wildlife species include the potential for invasion of non-native plant and animal species. Implementation of Mitigation Measure BIO-1 (*Section 4.1.5*) would implement an annual exotics removal program from the entire 11.2-acre project area which will reduce the potential long-term indirect impact of non-native invasive plant species. As such, with implementation of Mitigation Measure BIO-1, impacts would be reduced to less than significant.

Have a substantial adverse effect on any riparian, aquatic or wetland habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Permanent Impacts

The proposed maintenance project would not result in permanent impacts to special-status or sensitive vegetation communities or jurisdictional waters, including wetlands.

Temporary Impacts

Direct Impacts to Special-Status Vegetation Communities

Vegetation communities considered special-status or sensitive by the City of Carlsbad HMP and the City of Oceanside Subarea Plan include those listed in Habitat Groups A through E (City of Carlsbad 2004; City of Oceanside 2009b).

The proposed project would result in temporary direct impacts to sensitive vegetation communities as a result of the proposed vegetation removal activities. As indicated in *Section 3.2*, the vegetation removal would only occur in freshwater marsh and the understory of southern willow scrub; no trees, including riparian trees, would be removed during channel maintenance.

Figure 4.1-1 depicts the vegetation removal areas by maintenance year (years 1 through 5). *Table 4.1-3, Temporary Direct Impacts to Vegetation Communities and Land Covers,* shows the acreage of temporary direct impacts to vegetation communities and land covers in the project area over the 5-year maintenance cycle. There would be temporary impacts to the following special-status vegetation communities: freshwater marsh, southern willow scrub, and open water; which are all in Habitat Group A of the City of Carlsbad HMP and the City of Oceanside Subarea Plan.

Table 4.1-3
Temporary Direct Impacts to Vegetation Communities and Land Covers

Vegetation Communities and Land Covers	Year 1	Year 2	Year 3	Year 4	Year 5	Total (Acres)
Riparian/Water and Wetlands						
Freshwater Marsh*	0.91	1.15	0.73	0.43	0.45	3.67
Southern Willow Scrub (understory only)*	–	0.05	0.04	0.68	0.51	1.28
Subtotal	*0.91*	*1.20*	*0.77*	*1.11*	*0.96*	*4.95*
Unvegetated Waters						
Open Water*	0.13	–	–	–	–	0.13
Total	**1.04**	**1.20**	**0.77**	**1.11**	**0.96**	**5.08**

* Considered a special-status vegetation community.

As shown in *Table 4.1-3*, the project would result in direct temporary impacts to approximately 3.67 acre of freshwater marsh and approximately 1.28 acres of understory species in southern willow scrub over a 5-year period. Both freshwater marsh and southern willow scrub (understory) are considered special-status vegetation communities. Additionally, maintenance activities may occur within 0.13 acre of open water over a 5-year period. Impacts to open water are quantified because it lies within the delineated vegetation removal area; however, no vegetation removal is proposed in areas of open water.

These temporary impacts to special-status vegetation communities are considered a significant impact. Implementation of Mitigation Measure BIO-1 (*Section 4.1.5*) would reduce this impact to less than significant.

Additionally, direct, temporary impacts to vegetation communities could occur from removal or trampling of vegetation outside designated work zones. This impact to special-status vegetation communities as a result of disturbance outside of the impact area would be significant. Implementation of Mitigation Measure BIO-2 (*Section 4.1.5*) would reduce these potential impacts to less than significant.

Indirect Impacts to Special-Status Vegetation

During channel maintenance, fugitive dust, increased human activity, and the introduction of chemical pollutants (including herbicides) would result in short-term indirect impacts to special-status vegetation communities. These impacts would be significant. Implementation of Mitigation Measures BIO-2 and BIO-4 (*Section 4.1.5*) would reduce impacts to less than significant.

Potential long-term indirect impacts to vegetation communities, including changes in hydrology and the introduction of non-native invasive species would also be significant. Implementation of Mitigation Measure BIO-1 would result in the removal of exotic species within the 11.2-acre project area, and impacts would be reduced to less than significant.

Direct Impacts to Jurisdictional Waters, Including Wetlands

The proposed project would result in direct temporary impacts to several jurisdictional waters, including wetlands, as regulated by the ACOE, RWQCB, CDFW and/or CCC. There would be temporary impacts to the following jurisdictional waters or wetlands: freshwater marsh, southern willow scrub, and open water, as shown in *Table 4.1-4, Temporary Direct Impacts to Jurisdictional Waters, Including Wetlands*.

Table 4.1-4
Temporary Direct Impacts to Jurisdictional Waters, Including Wetlands

Vegetation Communities and Land Covers	Year 1	Year 2	Year 3	Year 4	Year 5	Total (Ac.)
ACOE/RWQCB/CDFG/CCC						
Freshwater Marsh	0.91	0.52	—	—	—	1.43
Southern Willow Scrub	—	0.05	—	—	—	0.05
Open Water	0.13	—	—	—	—	0.13
Subtotal	*1.04*	*0.57*	—	—	—	*1.61*
ACOE/RWQCB/CDFW						
Freshwater Marsh	—	0.63	0.73	0.43	0.45	2.24
Southern Willow Scrub	—	—	0.04	0.68	0.51	1.23
Subtotal	—	*0.63*	*0.77*	*1.11*	*0.96*	*3.47*
Total ACOE, RWQCB, CDFW and/or CCC	**1.04**	**1.20**	**0.77**	**1.11**	**0.96**	**5.08**

Over a five-year period, 1.61 acres of waters, including wetlands, under the jurisdiction of the ACOE, RWQCB, CDFW, and CCC, and an additional 3.47 acre of waters, including wetlands,

under the jurisdiction of ACOE, RWQCB, and CDFW would be maintained. The total for all categories, as shown in the table, would be 5.08 acres.

Direct temporary impacts to jurisdictional waters or wetlands would be a significant impact, and implementation of Mitigation Measures BIO-1 and BIO-4 would reduce potential impacts to below a level of than significance.

Indirect Impacts to Jurisdictional Waters, Including Wetlands

The project would result in potential long-term indirect impacts to jurisdictional waters or wetlands on site as a result of disturbance outside of the impact area; however, implementation of Mitigation Measure BIO-2 would reduce this impact to less than significant. The project would also result in long-term indirect impacts to jurisdictional waters, including wetlands, due to changes in hydrology and hydraulics, and the introduction of non-native invasive species. Implementation of Mitigation Measure BIO-1 would reduce this indirect impact to less than significant.

Jurisdictional waters, including wetlands, in the project area could be significantly impacted by potential short-term, indirect impacts such as the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants. Implementation of Mitigation Measures BIO-2 and BIO-4 would reduce impacts to less than significant.

Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

As discussed above, the proposed project would result in direct temporary impacts to 5.08 acres and potential long-term indirect impacts to waters, including wetlands, as defined by Section 404 of the Clean Water Act. Implementation of Mitigation Measures BIO-1 through BIO-4 would reduce these impacts to less than significant.

Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The Buena Vista Creek channel functions as a local wildlife corridor and linkage to the Buena Vista Lagoon downstream of the project area. Maintenance activities within Buena Vista Creek would temporarily impact portions of the project area, and would thus temporarily impact the functions of the corridor and linkage. Direct, temporary impacts to the Buena Vista Creek channel are considered minimal because one-fifth of the northern half of the stream channel would be affected in any given year over an approximately 4-week period. In addition, the vegetation removal would occur only in freshwater marsh, which on average revegetates within 6 months of being removed, and the understory of southern willow scrub; no trees including riparian trees would be removed during channel maintenance.

Maintenance activities would take place during the daytime and would not affect nocturnal wildlife species. Diurnal species could continue to use the southern half of the vegetation within the channel, which would be avoided, and the unmaintained portions of the channel, which totals 90% of the channel in any given year. In addition, the north half of the channel would be removed incrementally (i.e., one-tenth of the channel each year). Therefore, the Buena Vista Creek channel would continue to function as a habitat linkage and wildlife movement corridor following proposed project implementation, and hence impacts would be less than significant.

Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The project does not propose the removal of any trees. The proposed removal of freshwater marsh and the understory of the southern willow scrub would occur at the base of the vegetation community or at the water surface. Freshwater marsh habitat typically passively revegetates within 6 months of being removed and can often function as suitable habitat the summer after being removed. In addition, only 10% of the channel would be maintained in any given year.

The City of Carlsbad Municipal Code Chapter 11.12 addresses trees and shrubs, and provides policies and standards for planting, maintaining and removing street trees. Similarly, the City of Oceanside Municipal Code Chapter 31A, Street Trees and Other Vegetation, provides regulations in regards to planting and maintaining trees, plants, hedges, shrubs, and grass. The Cities of Carlsbad and Oceanside do not have any policies or ordinances to protect biological resources of local concern. In addition, the project does not propose the removal of any trees. The proposed removal of freshwater marsh and the understory of southern willow scrub would occur at the base of the vegetation community or at the water surface, to minimize impacts to these species and while increase water flow within the creek to reduce flooding within the maintenance district. Therefore, the proposed project would not result in a significant impact to locally protected biological resources.

Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

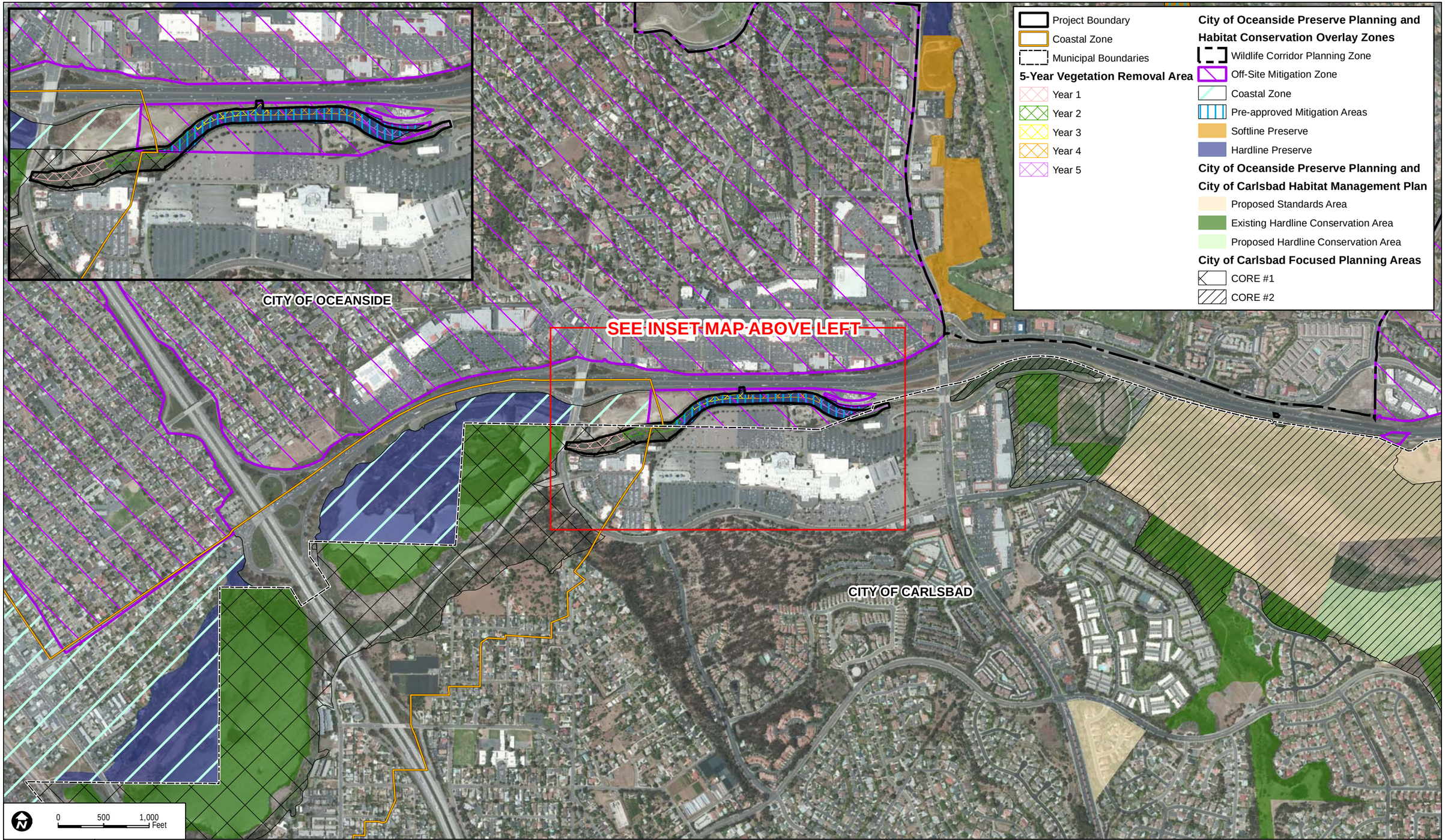
City of Carlsbad HMP

Within the City of Carlsbad, vegetation removal activities would occur within a total of 1.8 acres of FPA HMP Core Number 1 over a five-year period. Specifically, in the first year, 1.0 acre of Core Number 1 would be maintained, and in the section year 0.8 acre of Core Number 1 would be maintained. In the remaining years (Years 3–5), no vegetation would be removed in Core Number 1, and overall, 2.4 acres of Core Number 1 would be avoided and subject to exotics removal (refer to Mitigation Measure BIO-1). However, impacts to 1.8 acres with Core Number 1 are outside of an existing or proposed hardline preserve area or standards areas (see *Figure 4.1-3, Regulatory Setting with Proposed Maintenance*), and therefore are not targeted for conservation (City of Carlsbad 2004).

In addition, the Carlsbad HMP includes measures to minimize and mitigate impacts to Covered Species. The Covered Species observed on the project site include Cooper's hawk, yellow-breasted chat, and least Bell's vireo. Covered species with a moderate potential to occur includes southwestern willow flycatcher and light-footed clapper rail; however, focused protocol-level surveys for both species were negative. While this project is not a development project, it is consistent with the applicable species-specific measures, and the following measures have been or would be implemented as part of the proposed maintenance program:

1. Focused protocol-level surveys for least Bell's vireo, southern willow flycatcher, and light-footed clapper rail were conducted in 2012.
2. Removal of vegetation has been avoided and minimized to the maximum extent practicable by implementing a phased maintenance program whereby only one-tenth of the vegetation would be removed by hand each year, and only freshwater marsh and understory species would be removed. No willows or other riparian tree species would be removed; therefore, there are no direct impacts to suitable habitat for the least Bell's vireo, yellow-breasted chat, and Cooper's hawk (Covered Species observed on site), or to southwestern willow flycatcher (Covered Species with a moderate potential to occur on site).
3. None of the suitable breeding habitat (salt marsh habitats) for light-footed clapper rail, a Covered Species, would be impacted. The Carlsbad HMP states that freshwater marsh habitats upstream from salt marshes are commonly used by clapper rails during fall and winter. Freshwater marsh habitat typically passively revegetates within 6 months of being removed and can often function as suitable habitat the summer after being removed. Since only one-tenth of the vegetation, or between 0.43 acre and 1.15 acres of freshwater marsh, would be removed in any given year and the impacts are temporary, the proposed project would be consistent with the HMP for light-footed clapper rail.
4. Because there will be no soil disturbance, the channel contours will not be modified.
5. The City will obtain necessary regulatory permits, including a Streambed Alteration Agreement from CDFW, prior to commencing the proposed maintenance activities.
6. An exotics plant species control plan will be prepared as part of the mitigation project (Mitigation Measure BIO-1), consistent with the Carlsbad HMP, Habitat Restoration and Revegetation, Section F-2. The goals of the plan would ensure that the natural creek fluvial processes are interrupted on the southern, unmaintained portion of the channel and that riparian connection to downstream and upstream portions of focused planning areas are maintained.
7. Vegetation removal activities would occur outside of the breeding season for Covered Species observed on site or with the potential to occur on site (March 15 to September 15).

Overall, the proposed project would be consistent with the requirements of the Carlsbad HMP, and no significant impacts would result.



SOURCE: CA Coastal Comission; City of Carlsbad; City of Oceanside 2012; SANDAG; SanGIS; Bing Maps

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FIGURE 4.1-3

Regulatory Setting with Proposed Maintenance

BUENA VISTA CREEK CHANNEL MAINTENANCE PROJECT - ENVIRONMENTAL IMPACT REPORT

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City of Oceanside Subarea Plan

According to Section 5.3.2 of the Subarea Plan, more than 50% of the area (2.9 acres or more) located within the Pre-approved Mitigation Area vegetation shall be avoided, and only 2.8 acres (less than 50%) of vegetation may be subject to vegetation removal activities over a 5-year period. The proposed mitigation includes exotics removal on the southern half of the channel including the 2.9 acres that lies within the Off-site Mitigation Zone of the Pre-approved Mitigation Areas (refer to Mitigation Measure BIO-1). The proposed project will not result in impacts to coastal sage scrub.

In accordance with Section 5.2.4 of the Subarea Plan, there would be no-net-loss of wetlands. The proposed vegetation removal would only occur in freshwater marsh and the understory of southern willow scrub; no trees, including riparian trees, would be removed during channel maintenance. Freshwater marsh habitat typically revegetates within 6 months of being removed and can often function as suitable habitat the summer after being removed. Since 90% of the channel would not be maintained in any given year, and due to the fact that freshwater marsh revegetates in less than 1 year, the direct impacts to biological resources associated with the proposed maintenance project are considered temporary, and there would be no-net-loss of wetlands. Regardless, an exotics plant species control plan would be prepared as part of the mitigation program (refer to Mitigation Measure BIO-1), on site and within the affected drainage per Section 5.2.4 of the Subarea Plan.

Additionally, as part of the mitigation program, a project biologist would implement or verify implementation of Best Management Practices and conduct pre-activity education meetings consistent the project implementation guidelines provided in Section 5.2.8 of the Oceanside HCP/NCCP (refer to Mitigation Measure BIO-2).

Overall, the proposed project would be consistent with the requirements of the Oceanside Subarea Plan. There would be no conflicts with the provisions of an adopted HMP, NCCP, or other approved local, regional, or state HCP, and impacts would be less than significant.

4.1.5 Mitigation Measures

Implementation of the following mitigation measures would reduce potentially significant impacts to biological resources:

BIO-1 Proposed mitigation for temporary impacts to special-status vegetation communities shall be through on-site enhancement. The Maintenance District shall be responsible for monitoring and eradicating exotic plant species within the 11.2-acre project area annually for the duration of the maintenance program. The enhancement shall be implemented in accordance with the Buena Vista Creek

Channel Exotic Plant Species Control Plan (Dudek 2003) and any additional updates to this plan required by the California Department of Fish and Wildlife (CDFW) in the Streambed Alteration Agreement. A monitoring report documenting the invasive exotic plant species removed and an assessment of the functions and values of the 11.2-acre project area shall be submitted to the City of Carlsbad City Planner and City Engineer annually.

BIO-2 To prevent inadvertent disturbance to areas outside the limits of the maintenance areas, the vegetation removal shall be monitored by a qualified biologist. A biologist shall be contracted by the City of Carlsbad to perform biological monitoring during maintenance activities.

Additionally, the project biologist shall implement or verify implementation of the following monitoring requirements and Best Management Practices (BMPs) and conduct pre-activity education meetings to review each of these requirements and BMPs. Monitoring reports and a post-construction monitoring report shall be prepared to the satisfaction of the City of Carlsbad to document compliance with BIO-1.

1. During vegetation removal activities, biologist shall conduct daily site visits.
2. Biologist shall discuss procedures for minimizing harm to or harassment of wildlife encountered during maintenance activities with the contractor and other key construction personnel prior to activities.
3. Biologist shall review and/or designate the vegetation removal area in the field with the contractor in accordance with the final plan.
4. Biologist shall flush special-status species (i.e., avian or other mobile species) from occupied habitat areas immediately prior to vegetation removal activities.
5. Maintenance vehicles shall not exceed 15 miles per hour on unpaved roads adjacent to project site or the right-of-way accessing the site.
6. If trash and debris need to be stored overnight during the maintenance activities, fully covered trash receptacles that are animal-proof and weather-proof will be used by the maintenance contractor to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Alternatively, standard trash receptacles may be used during the day, but must be removed each night.
7. Cut vegetation shall be hauled out of the channel and stored, if necessary, where it cannot be washed by rainfall or runoff into the channel. When

maintenance activities are completed, any excess materials or debris shall be removed from the project site.

8. Temporary structures and storage of construction materials shall not be located in jurisdictional waters, including wetlands and riparian areas.
9. Staging/storage areas for construction equipment and materials shall not be located in jurisdictional waters, including wetlands and riparian areas.
10. Any hand-held equipment used for maintenance activities that is operated within jurisdictional waters, including wetlands and riparian areas, shall be checked and maintained by the operator daily to prevent leaks of oil or other petroleum products that could be deleterious to aquatic life if introduced to the watercourse.
11. No equipment maintenance shall be performed within 100-feet of jurisdictional waters, including wetlands and riparian areas, where petroleum products or other pollutants from the equipment may enter these areas. Fueling of equipment shall not occur on the project site.
12. Pets on or adjacent to construction sites shall not be permitted by the operator.

BIO-3 In order to avoid temporary indirect impacts to nesting birds, maintenance activities shall not occur during the nesting bird season (March 15 through September 15).

BIO-4 All applicable laws, regulations, safety precautions, and label directions must be followed when performing pest control. All pesticide applications shall be performed by a contractor with a valid Qualified Applicator License (QAL) and a valid Pest Control Business License. A licensed Pest Control Adviser (PCA) shall be consulted if specific pest control recommendations are required. The timing of any weed control shall be determined for each plant species with the goal of controlling populations before they can reproduce by spreading vegetatively or producing seed.

4.1.6 Level of Significance after Mitigation

Implementation of Mitigation Measures BIO-1 through BIO-4 would reduce potentially significant biological resources impacts to less than significant.

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4.2 HYDROLOGY AND WATER QUALITY

4.2.1 Methodology

This section focuses on potential impacts to water, water resources and water quality impacts as a result of implementing the proposed project. A hydraulic study was recently prepared for the project corridor by Howard H. Chang Consultants (*Appendix C*). Applicable information from this study is summarized below along with other pertinent data such as review of the City of Carlsbad's channel construction plans, Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), and FEMA flood discharge data.

4.2.2 Existing Conditions

The Buena Vista Creek channel was relocated to its current alignment to construct a parking lot for Plaza Camino Real in 1979. The Buena Vista Creek channel serves as a flood control channel and is riprap-sided with a natural-bottom. The northern half of the channel was dredged in 1993 and again in 1997. As introduced in *Section 3.1.1, Purpose and Need of the Project*, in 2004 the City began an on-going maintenance program within the northern half of the channel between the South Vista Way Bridge and the Coastal Zone. The portion of the Buena Vista Channel Maintenance Project within the California Coastal Commission (CCC) zone, which has not been maintained since dredging in 1997, is starting to accumulate sediment, and at times, impeding the channel outlet. The effect of increased channel roughness has resulted in greater resistance to flow that jeopardizes the flood control capacity of the stream channel.

4.2.2.1 Surface Water

Buena Vista Creek serves as a main drainage system for the cities of Vista and Oceanside, emptying into Buena Vista Lagoon and ultimately the Pacific Ocean. The Regional Water Quality Control Board (RWQCB) has identified beneficial uses for this stream channel, including municipal and domestic supply, agricultural supply, industrial service supply, freshwater replenishment, navigation, hydropower generation, contact water recreation, non-contact water recreation, commercial and sport fishing, aqua culture, warm freshwater habitat, cold freshwater habitat, inland saline water habitat, estuarine habitat, marine habitat, migration of aquatic organisms, shellfish harvesting, and wildlife habitat (RWQCB, San Diego Region, Water Quality Control Plan 1994 with amendments 2011).

4.2.2.2 Groundwater

Groundwater is defined as subsurface water that occurs beneath the water table in fully saturated soils and geologic formations. Groundwater bearing formations sufficiently permeable to transmit and yield significant quantities of water are called aquifers. However, there are groundwater bearing geologic formations within the area that do not meet the definition of an aquifer. As stated in the San

Diego Basin Plan, principal groundwater basins in the San Diego Region are small and shallow. Only a small portion of the region is underlain by permeable geologic formations that can accept, transmit and yield appreciable quantities of groundwater (RWQCB, San Diego Region, Water Quality Control Plan 1994 with amendments 2011). The proposed project site is located within the South Coast Hydrologic Region, specifically within the Batiquitos Lagoon Valley Groundwater Basin, Basin No. 9-22 of the California Department of Water Resources Groundwater Basin Map. The Basin spans approximately 741 acres and underlies the Green Valley and San Marcos Creek Valley in western San Diego County (California Department of Water Resources 2004).

4.2.2.3 Flood Rating

FEMA provides floodplain information through the publication of FIRMS. All FIRMs delineate the location of 100- to 500-year floodplains. The project site is located along Buena Vista Creek within a FEMA mapped drainage area for the 100- and 500-year flood zones. When the channel was relocated in 1979, the channel was designed to contain the 100-year storm event without vegetation (*Figure 4.2-1, 100-year Flood Plain Map*). The project site is also located within a FEMA-designated flood hazard area "AE", which is considered a "high risk" area under FEMA and subject to inundation by a 100-year storm event. The site is also located within flood zone "X", which is considered an area of minimal flood hazard (FEMA 2012) (see *Figure 4.2-1*). The Buena Vista Lagoon (immediately west of Jefferson Avenue) is designated as a flood hazard zone "A," which is an area subject to inundation by the 1-%-annual-chance of a flood event.

Based on the results of the hydraulic studies, the area prone to flooding is from upstream of Channel Station 1.030 to Channel Station 1.174 and just upstream of Channel Station 1.296 to the South Vista Way Bridge. The adjacent parking lots are subject to flooding; however, the 100-year flood level does not reach the building floors of Plaza El Camino Real. In order to maintain the 100-year flood capacity of the engineered channel and protect the properties (including the parking lots) within the Maintenance District, flood improvement measures are required.

4.2.2.4 Water Quality

Water quality refers to the effect of natural and human activities on the composition of water. Water quality is expressed in terms of measurable physical and chemical qualities that can be related to planned water use. According to the San Diego Basin Plan, Buena Vista Creek has the following beneficial uses: municipal and domestic supply, agricultural supply, industrial service supply, freshwater replenishment, navigation, hydropower generation, contact water recreation, non-contact water recreation, commercial and sport fishing, aqua culture, warm freshwater habitat, cold freshwater habitat, inland saline water habitat, estuarine habitat, marine habitat, migration of aquatic organisms, shellfish harvesting, and wildlife habitat (RWQCB, San Diego Region, Water Quality Control Plan 1994 with amendments 2011).

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SOURCE: Bing Maps 2012.

FIGURE 4.2-1

100-year Flood Plain Map

BUENA VISTA CREEK CHANNEL MAINTENANCE PROJECT - ENVIRONMENTAL IMPACT REPORT

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Buena Vista Creek is located within the Carlsbad Watershed Unit, specifically within the Buena Vista Creek Hydrologic Area (904.20). Buena Vista Creek is listed on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments dated June 28, 2007 for Sediment Toxicity (SDRWQCB 2007). Total Maximum Daily Loads (TMDLs) for Sediment Toxicity are proposed to be completed in 2019.

4.2.2.5 Applicable Plans and Policies

Federal Regulations

Clean Water Act

The United States Environmental Protection Agency (EPA) regulates water quality under the Clean Water Act (CWA) (also known as the Federal Water Pollution Control Act). Enacted in 1972, and significantly amended in subsequent years, the CWA is designed to restore and maintain the chemical, physical, and biological integrity of waters of the United States. The CWA provides the legal framework for several water quality regulations, including the National Pollutant Discharge Elimination System (NPDES), effluent limitations, water quality standards, pretreatment standards, anti-degradation policy, non-point source discharge regulation, and wetlands protection.

The CWA requires NPDES permits for the discharge of pollutants to waters of the United States from any point source. In 1987, the CWA was amended to require that the EPA establish regulations for permitting of municipal and industrial stormwater discharges under the NPDES permit program. The EPA published final regulations regarding stormwater discharges on November 16, 1990. The regulations require that municipal separate storm sewer system (MS4) discharges to surface waters be regulated by an NPDES permit. Surface runoff from the project site is permitted under the municipal NPDES permit issued to San Diego County and co-permittees, which includes the City of Oceanside.

The EPA has delegated its responsibility for administration of portions of the CWA to state and regional agencies. The CWA requires states to adopt water quality standards for receiving water bodies and to have those standards approved by the EPA. Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing, etc.), along with water quality criteria necessary to support those uses. Water quality criteria are prescribed concentrations or levels of constituents, such as lead, suspended sediment, and fecal coliform bacteria, or narrative statements that represent the quality of water that supports a particular use.

National and State Safe Drinking Water Acts

The Federal Safe Drinking Water Act was established in 1974 and sets drinking water standards throughout the country; it is administered by EPA. The drinking water standards established in the act, as set forth in the Code of Federal Regulations (CFR), are referred to as the National Primary Drinking Water Regulations (40 CFR 141, Primary Standards), and the National Secondary Drinking Water Regulations (40 CFR 143, Secondary Standards). According to the EPA, the Primary Standards are legally enforceable standards that apply to public water systems. The Secondary Standards are non-enforceable guidelines regulating contaminants that may cause cosmetic or aesthetic effects in drinking water. The EPA recommends the Secondary Standards for water systems but does not require systems to comply. California passed its own Safe Drinking Water Act in 1986 that authorizes the state's Department of Health Services to protect the public from contaminants in drinking water by establishing maximum contaminants levels (as set forth in the California Code of Regulations (CCR), Title 22, Division 4, Chapter 15) that are at least as stringent as those developed by the EPA, as required by the Federal Safe Drinking Water Act.

Federal Antidegradation Policy

The Federal Antidegradation Policy (40 CFR 131.12) requires states to develop statewide antidegradation policies and identify methods for implementing them. Pursuant to this policy, state antidegradation policies and implementation methods shall, at a minimum, protect and maintain: (1) existing in-stream water uses; (2) existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource. State permitting actions must be consistent with the Federal Antidegradation Policy.

State Regulations

California Toxics Rule

Because of gaps in California's regulations, the EPA promulgated the California Toxics Rule (40 CFR 131.38), which established numeric water quality criteria for certain toxic substances in California surface waters. The California Toxics Rule establishes acute (i.e., short-term) and chronic (i.e., long-term) standards for water bodies that are designated by the San Diego Regional Water Quality Control Board (SDRWQCB) as having beneficial uses protective of aquatic life or human health. The California Toxics Rule criteria are applicable to the receiving waters from the project site.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) established the principal California legal and regulatory framework for water quality control. The Porter-Cologne Water Quality Control Act is embodied in the California Water Code. The California Water Code authorizes the State Water Resources Control Board (SWRCB) to implement the provisions of the CWA.

California is divided into nine regions governed by RWQCBs. The RWQCBs implement and enforce provisions of the California Water Code and the CWA under the oversight of the State Water Quality Control Board (SWQCB). The project site is located in Region 9, also known as the San Diego Region, and is governed by the SDRWQCB.

Each RWQCB must formulate and adopt a water quality control plan for its region. The SDRWQCB has adopted and periodically amends a water quality control plan titled, *Water Quality Control Plan for the San Diego Basin* (Basin Plan). The SDRWQCB Basin Plan must conform to the policies set forth in the Porter-Cologne Act as established by the SWQCB in its state water policy. The Porter-Cologne Act also provides the RWQCBs with authority to include within their basin plans water discharge prohibitions applicable to particular conditions, areas, or types of waste.

Section 303(d) – Total Maximum Daily Loads

The CWA requires states to publish, every 2 years, an updated list of streams and lakes that are not meeting their designated uses because of excess pollutants (i.e., impaired water bodies). The list, known as the Section 303(d) list, is based on violations of water quality standards. Once a water body has been deemed impaired, a TMDL must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards (plus a "margin of safety"). Once established, the TMDL allocates the loads among current and future pollutant sources to the water body. Targets utilized in the TMDL do not establish new water quality objectives and are not enforceable against dischargers. Allocations made to point sources are implemented primarily through NPDES permits, particularly the MS4 permit as well as the Generation Industrial and General Construction Permits. Additionally, once a TMDL is developed and adopted into a basin plan, the water body is removed from the Section 303(d) list.

States are required to submit the Section 303(d) list and TMDL priorities to the EPA for approval. The 2006 Section 303(d) list is the most recently adopted list. The 2006 Section 303(d) list was adopted by the SWRCB and approved for transmittal to the EPA on October 25, 2006. The 2006 Section 303(d) list was partially approved and subsequently revised by the EPA. As mentioned above, Buena Vista Creek is listed on the 2006 Clean Water Act Section 303(d) List of Water Quality Limited Segments dated June 28, 2007 for Sediment Toxicity (SDRWQCB 2007a). TMDLs for Sediment Toxicity are proposed to be completed in 2019.

Local Regulations

San Diego Basin Plan

The Water Quality Control Plan for the San Diego Basin (Basin Plan) sets forth water quality objectives for constituents that could potentially cause an adverse effect or impact on the beneficial uses of water. Specifically, the San Diego Basin Plan is designed to accomplish the following:

- Designate beneficial uses for surface and ground waters
- Set the narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's anti-degradation policy
- Describe implementation programs to protect the beneficial uses of all waters within the region
- Describe surveillance and monitoring activities to evaluate the effectiveness of the Basin Plan.

The Basin Plan incorporates by reference all applicable SWRCB and RWQCB plans and policies.

City of Oceanside Clean Water Program

The City of Oceanside Clean Water Program is a local initiative to aid in the education and awareness required to maintain and improve water quality in local creeks, rivers, and Pacific Ocean coastline and to comply with state and regional environmental regulations governing water quality. The program aims to educate the Oceanside community, including industrial and commercial business owners and employees, developers, municipal staff, residents, students and teachers, about pollution prevention practices. The program also includes measures for water quality monitoring, construction site inspections and inspections of industrial and commercial business, and education outreach (City of Oceanside 2012b).

4.2.3 Criteria for Determining Significance

According to the City of Carlsbad, a significant impact would occur if the proposed project would:

- Violate water quality standards or waste discharge requirements as set forth by the San Diego RWQCB.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge.
- Substantially alter the existing drainage pattern of the site or area which would result in substantial erosion or siltation on or off site.

- Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site.
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide additional sources of polluted runoff.
- Result in alteration of an existing 100-year floodplain or flood regime.
- Subject people or existing or proposed structures to flooding due to alteration or disturbance to an existing floodplain.
- Potentially degrade the water quality associated with a sensitive wetland or hydrologic resource.
- Substantially degrade water quality.

4.2.4 Impact Analysis

Would the project result in a violation of water quality standards or waste discharge requirements as set forth by the San Diego RWQCB?

Hand removal of the vegetation within the northern half of the channel would not involve any ground disturbance, and therefore the proposed channel maintenance activities would not result in runoff or discharge. Approximately 10% of the above ground cattail and other wetland plants in the project area are removed each year at the end of the growing season/beginning of the dormant season. The below ground portions of the plants remain in place and alive, and the plants regrow above-ground quickly. Due to the lack of soil disturbance, the project would not cause erosion or sedimentation. As described in *Section 1.1, Background,* vegetation is cut at ground level or the water surface and is hauled out of the channel and disposed of appropriately. Therefore, a Clean Water Act, Section 401 and 404 permit issued by the RWQCB and the ACOE is not required for the proposed project because no fill or dredge will occur during the proposed maintenance activities.

However, equipment required for maintenance activities would include trucks for the transport of the vegetation and the potential use of hand-held motorized equipment such as chainsaws, both of which have the potential for spills of hazardous materials such as fuel or oil adjacent to the creek. In order to reduce potentially significant impacts to water quality in Buena Vista Creek and Buena Vista Lagoon, Mitigation Measure HYDRO-1 is recommended (*Section 4.2.5, Mitigation Measures,* below). With implementation of this mitigation measure, potential impacts would be reduced to a less than significant level.

Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge?

The City proposes to maintain one-fifth of the northern half of the stream channel or one-tenth of the channel in any given year. The proposed maintenance removal would occur above ground and

would not affect groundwater levels or groundwater qualities. No significant impacts to groundwater would occur.

Would the project substantially alter the existing drainage pattern of the site or area which would result in substantial erosion or siltation on or off site?

Hand removal of the vegetation within the northern half of the channel would not involve any ground disturbance and drainage would not be altered. The proposed channel maintenance activities would not result in significant impacts due to erosion or sedimentation.

Would the project substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?

Hand removal of the vegetation within the northern half of the channel would not involve any ground disturbance, nor would it introduce any impervious surfaces. The proposed activities would not increase the rate or amount of runoff, and drainage at or near the site would not be altered. Additionally, as discussed below, the proposed maintenance activities would reduce the amount of flooding that currently occurs on the banks of the creek. The proposed channel maintenance activities would not result in significant impacts due to runoff or flooding.

Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide additional sources of polluted runoff?

Hand removal of the vegetation within the channel would not involve any ground disturbance and therefore would not result in runoff or discharge. Therefore, no impacts related to the capacity of stormwater drainage systems would occur, and additional sources of polluted runoff would not result.

Would the project result in alteration of an existing 100-year floodplain or flood regime?

On the northern bank of the channel, under existing conditions, a 100-year flood event would overtop the banks for a considerable channel length, and in order to provide 100-year flood project, the levee would need to be improved and raised at least 3 feet. Similarly, on the southern side of the channel, the sewage treatment plant (located at between Channel Stations 1.532 and 1.597) is separated from the channel by a levee, which would need to be improved and raised at least 3 feet to provide 100-year flood protection of the treatment plant under existing conditions (Chang Consultants 2013). Improving and raising the levees in these areas is not within scope of services provided by Maintenance District (City of Carlsbad 1989) and is, therefore, not part of the proposed project.

On the southern bank of the channel, without additional channel maintenance (i.e., existing conditions), overtopping of the banks during a 100-year flood event would occur just upstream of Channel Station 1.030 to Channel Station 1.174 and just upstream of Channel Station 1.296 to the

South Vista Way Bridge inundating the adjacent parking lot in the Maintenance District. The flood water from the parking lot carries pollutants into the creek which adversely affects the water quality.

The hydraulic study (Chang Consultants 2013) analyzed the level of flood protection provided if the entire 11.2-acre channel (both the northern and southern portions) was maintained annually. Under this scenario, the flows would overtop the northern channel banks near the Jefferson Street Bridge and the Mohnacky Animal Hospital of Carlsbad and on the southern channel the flows would overtop the banks by 0.1 feet at one channel station; thus, the flows would largely be contained within the southern channel banks if the entire channel was maintained annually.

The proposed maintenance program consists of hand removal of vegetation within the northern half of the channel between the South Vista Way Bridge and the Jefferson Street Bridge over a 5 year period (i.e., one-tenth of the channel each year) (see Figure 3-1 Proposed Maintenance Area in *Chapter 3, Project Description*). The 5-year maintenance regime would provide between 21-year flood protection in maintenance Year 1 and 41-year flood protection in Year 5. Between Channel Stations 1.135 and 1.336 and just downstream of the Vista Way Bridge, the 5-year maintenance regime would provide 100-year flood protection and avoid inundating the adjacent parking lot in the Maintenance District with flood water. At other channel station locations, while a 5-year maintenance regime would not provide 100-year flood protection, the maintenance would reduce the amount of flooding.

Table 4.2-1, Comparison of Channel Banks Overflow during a 100-Year Storm Event for No Maintenance and a 5-Year Maintenance Regime (also shown in *Chapter 3, Project Description*, as *Table 3-1*) shows the potential flood level at the channel banks if no maintenance occurred in the channel. *Table 4.2-1* also shows the flood levels during Year 1 through Year 5 of a 5-year maintenance regime. Finally, *Table 4.2-1* shows the difference between no maintenance and Year 1 through Year 5 of 5-year maintenance regime. For example, at Channel Station 1.066, the channel would overtop the banks by 2.2 feet during a 100-year storm event if the channel was not maintained and by 0.5 feet during Year 1 of a 5-year maintenance regime. Therefore, in Year 1 of a 5-year maintenance regime the surface elevation flooding would be reduced by 1.7 feet.

While hand-removal of vegetation within one-half of the channel (northern portion of the channel) over a 5-year period (or one-tenth of channel annual) would not provide for 100-year flood protection for the properties and parcels within the Maintenance District, this maintenance regime would reduce potential flooding impacts from existing levels and improve conditions along the creek. As such, the project would provide a net benefit with respect to flooding. The proposed project would also avoid and minimize impacts to special-status biological resources in the channel and water quality. Overall, impacts would be less than significant.

Table 4.2-1
Comparison of Channel Banks Overflow during a 100-Year Storm Event for No Maintenance and a 5-Year Maintenance Regime

Channel Station No.	No Maintenance (feet)	5-Year Maintenance Regime									
		After Year 1 (feet)	*Year 1 Benefit over No Maintenance (feet)*	*Year 2(feet)*	*Year 2 Benefit over No Maintenance (feet)*	*Year 3 (feet)*	*Year 3 Benefit over No Maintenance (feet)*	*Year 4 (feet)*	*Year 4 Benefit over No Maintenance (feet)*	*Year 5 (feet)*	*Year 5 Benefit over No Maintenance (feet)*
1.066	2.2	0.5	1.7	0.6	1.6	0.6	1.6	0.6	1.6	0.7	1.6
1.100	2.6	1.1	1.5	1.3	1.4	1.3	1.3	1.4	1.2	1.4	1.2
1.373	1.0	0.1	0.8	-0.2	1.2	-0.5	1.5	-0.2	1.2	0.0	1.0
1.413	1.4	0.7	0.7	0.4	1.0	-0.3	1.7	0.1	1.3	0.3	1.1
1.454	1.8	1.2	0.6	0.9	0.9	0.1	1.7	0.3	1.6	0.6	1.3
1.498	1.6	1.0	0.5	0.8	0.8	0.1	1.4	-0.4	1.9	0.0	1.5
1.532	4.0	3.6	0.4	3.4	0.6	3.0	1.1	1.8	2.2	2.3	1.7
1.564	3.5	3.1	0.4	3.0	0.5	2.6	0.9	1.1	2.3	1.6	1.8
1.597	3.8	3.5	0.3	3.4	0.4	3.1	0.8	1.6	2.3	1.8	2.0
1.629	4.0	3.7	0.3	3.6	0.4	3.3	0.6	2.1	1.9	1.8	2.2
1.661	4.4	4.2	0.2	4.1	0.3	3.8	0.6	2.8	1.6	2.0	2.4
1.701	4.3	4.1	0.2	4.1	0.3	3.9	0.5	3.1	1.3	1.2	3.1

Would the project subject people or existing or proposed structures to flooding due to alteration or disturbance to an existing floodplain?

As discussed above, the proposed project would reduce potential flooding impacts from current conditions and improve conditions along the creek. The specific benefit of the proposed maintenance activities are shown in *Table 4.2-1* by each year of the 5-year program. As the proposed project would reduce potential flooding impacts compared to existing conditions, impacts are considered beneficial, and no significant impacts would result.

Would the project potentially degrade the water quality associated with a sensitive wetland or hydrologic resource?

While Buena Vista Creek is listed on the San Diego Water Quality Control Board 303(d) List for sediment toxicity, the proposed channel maintenance activities would not result in runoff, discharge, erosion, or sedimentation. Approximately 10% of vegetation in the northern channel is removed each year; no removal of vegetation would occur in the southern half of the channel. Therefore, the remainder of the vegetation within the channel will continue to act as a filter to capture nutrients and other pollutants, as well as trash and other debris. In addition, maintenance activities include the removal of accessible trash and debris throughout the channel. While the use of herbicides would be used to control invasive exotic species; best management practices (BMPs) have been incorporated into the project to protect water quality. BMPs include: the use herbicides that contain materials which bond with soil particles, and other organic matter that it comes into contact with, so that it will not be transported to the creek by rainwater runoff; the proper use of the chemicals by applicable laws, regulations, safety precautions and label directions; mixing small batches of the herbicide and spot spraying the weeds using hand-held or backpack sprayers; and not applying the herbicide to the water or during raining weather. Therefore, the use of herbicides as proposed would not degrade the water quality.

The beneficial uses of the creek identified by the RWQCB, including municipal and domestic supply, agricultural supply, industrial service supply, freshwater replenishment, navigation, hydropower generation, contact water recreation, non-contact water recreation, commercial and sport fishing, aqua culture, warm freshwater habitat, cold freshwater habitat, inland saline water habitat, estuarine habitat, marine habitat, migration of aquatic organisms, shellfish harvesting, and wildlife habitat (RWQCB, San Diego Region, Water Quality Control Plan 1994 with amendments 2011), would not be impacted by the proposed project. Therefore, the proposed project would not result in any impacts related to a sensitive wetland or hydrologic resource, and impacts would be less than significant.

Would the project substantially degrade water quality?

As discussed above, hand removal of the vegetation within the northern half of the channel will not involve any ground disturbance and therefore the proposed channel maintenance activities

would not result in runoff or discharge. Additionally, there would be no erosion or sedimentation associated with the project. Implementation of BMPs such as the use of herbicide material that chemically bonds with the weeds, soil particles and other organic matter that it comes into contact with would prevent the transport of the chemical into the creek from rainwater runoff. This herbicide would photo-degrade in a relatively short period of time and would not persist in the environment. Therefore, the proposed project would not substantially degrade water quality, and impacts would be less than significant.

4.2.5 Mitigation Measures

As analyzed above in *Section 4.2.4, Impact Analysis*, equipment required for maintenance activities would include trucks for the transport of the vegetation which have the potential for spills of hazardous materials, such as fuel or oil adjacent to the creek. In order to minimize these potential impacts to water quality in Buena Vista Creek and Buena Vista Lagoon, Mitigation Measure HYDRO-1 is recommended.

HYDRO-1 The Maintenance District shall ensure that all equipment required for maintenance activities shall be refueled or maintained within designated staging areas (adjacent parking lots). Best Management Practices (BMPs) to contain accidental spills of hazardous materials shall be utilized when performing vehicle maintenance or refueling. Such BMPs may include the following:

- When equipment is being utilized along the access road, drip pans shall be placed under all potential discharge conduits or leaks.
- "Spot clean" leaks and drips routinely to prevent runoff of spillage.
- Post signs to remind employees not to top off the fuel tank when filling and signs that ban employees from changing engine oil or other fluids at the project location.
- Report leaking vehicles to fleet maintenance.

4.2.6 Level of Significance after Mitigation

Implementation of Mitigation Measure HYDRO-1 would reduce potentially significant water quality impacts to less than significant.

CHAPTER 5
EFFECTS NOT FOUND TO BE SIGNIFICANT

5.1 INTRODUCTION

Section 15128 of the California Environmental Quality Act (CEQA) Guidelines requires that an environmental impact report (EIR) briefly describe any potential environmental effects that were determined not to be significant during the initial project scoping, and therefore, were not discussed in detail in the EIR.

This section contains a brief discussion of the rationale for the determination that certain environmental effects identified at the scoping phase of the proposed project would not be significant. The scoping process for the Draft Supplemental EIR (SEIR) concluded that the proposed project would not result in significant impacts in the following environmental categories. Therefore, those issues received no further consideration in the SEIR.

5.2 AESTHETICS

The channel maintenance program proposes to continue the removal of vegetation along the stream channel within the maintenance district. The proposed maintenance activities would not alter the design contours or elevation of the channel. The current views of Buena Vista Creek consist primarily of native vegetation; specifically freshwater marsh with patches of southern willow scrub interspersed. The project site is visible to motorists from State Route (SR-) 78, El Camino Real, South Vista Way bridge, Jefferson Street bridge, and the parking lots of Plaza Camino Real.

The City of Carlsbad General Plan and the City of Oceanside General Plan do not designate any scenic vistas. The City of Carlsbad General Plan Open Space and Conservation Element, does designate open space areas for scenic purposes as a Category 1 Open Space for the Preservation of Natural Resources. While Buena Vista Creek contains natural resources, the proposed maintenance program proposes to main the vegetation within the creek to provide flood protection benefits for the properties in the Maintenance District. The proposed maintenance activities would involve cutting the vegetation by hand at the top of the water surface in phases and would not substantially alter views of the stream channel from public vantage points. In addition, freshwater marsh habitat typically revegetates within six months of being removed. Since 90% of the channel will not be maintained in any given year, and due to the fact that freshwater marsh revegetates in less than 1 year, potential impacts to scenic resources and the existing visual character of the site would be temporary and less than significant.

Views to the project site from SR-78, El Camino Real, South Vista Way and Jefferson Street are short in duration. The project site is not situated within a state scenic highway (Caltrans

2012). The City of Carlsbad General Plan Circulation Element designates Community Scenic Corridors, and Natural Open Space and Recreation Corridors. The project site is not located near a City of Carlsbad Community Scenic Corridor; however, Jefferson Street adjacent to Buena Vista Lagoon is designated as a Natural Open Space and Recreation Corridor. No feature of the proposed vegetation removal would conflict with the City's Natural Open Space and Recreation Corridor, and impacts would be less than significant.

The proposed maintenance activities would involve cutting vegetation within the creek to provide flood protection. The proposed maintenance activities would not create a new source of substantial light or glare that would adversely affect day or nighttime views in the area. Therefore, no impacts would occur in this regard.

5.3 AGRICULTURAL AND FORESTRY RESOURCES

The project area is confined to the Buena Vista Creek channel. Surrounding land uses consist of transportation corridors, vacant land (designated and proposed for commercial use) and existing commercial uses. There are no known farmlands or timberlands located within the proposed project corridor or adjacent land uses. According to the California Department of Conservation Farmland Mapping and Monitoring Program (California Department of Conservation 2008), the project site is located as a creek within an area designated as urban and built up land, and is not located within an area designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, and so would not convert any of these farmlands to non-agricultural use. In addition, the proposed project would not conflict with a Williamson Act contract or with existing zoning for agricultural use, forest land, timberland, or timberland zoned Timberland Production (CDC 2008; City of Carlsbad 2010; City of Oceanside 2009). The City of Oceanside General Plan Environmental Resource Management Element indicates that there are two primary areas of significant agricultural production in the City (City of Oceanside 2002, Environmental Resource Management Element, pg. 37, and Figure ERM-7). The proposed project site is not contained within either of these agricultural areas, and is not adjacent to either of these areas. Given these factors, the project would not result in the loss or conversion of forest land to non-forest use, and would not involve any changes leading to the conversion of farmland or forest land to non-agricultural or non-forest uses.

5.4 AIR QUALITY

The channel maintenance program proposes to continue the removal of vegetation along the stream channel within the maintenance district. Vegetation removal would be conducted with non-mechanized hand tools (e.g., machetes and scythes) and if necessary hand-held mechanized tools (e.g., weed whackers and chainsaws) would be used. Maintenance vehicles would be used to provide access to the project site and to haul vegetation. Since on-site equipment for the

project would be limited to two to three motor vehicles, and hand-held mechanized equipment, emissions from criteria pollutants including oxides of nitrogen (NO_x) carbon monoxide (CO), ozone (O_3), particulate matter less than or equal to 10 microns (PM_{10}), and particulate matter less than or equal to 2.5 microns ($PM_{2.5}$) would result.

The San Diego Air Basin (SDAB) is currently classified as a federal nonattainment area for ozone (O_3) and a state nonattainment area for particulate matter less than or equal to10 microns (PM_{10}), particulate matter less than or equal to 2.5 microns ($PM_{2.5}$), and O_3. Emissions of these criteria pollutants would occur under the proposed project due to the use of vehicles on site and limited hand-held mechanized equipment.

Emissions from the project were estimated through the use of emission factors from URBEMIS 2007, Version 9.2.4. For the purposes of modeling, it was assumed that the maintenance activities would last for four weeks each year. Over the course of those four weeks, two vehicles would drive to and from the site and workers could utilize a weed whacker and a chainsaw. It was conservatively assumed that both pieces of equipment would be approximately 4 horsepower and would operate at a load factor of 1.0 4 hours per day for the entire 4-week duration. Model printouts are included in Appendix D. Table 5-1, Estimated Maximum Daily Emissions, shows the estimated maximum daily emissions associated with the proposed project.

Table 5-1
Estimated Maximum Daily Emissions (pounds/day)

	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Proposed Project Emissions						
Estimated Emissions	0.05	0.22	0.85	0.00	0.01	0.01
Emission Threshold	137	250	550	250	100	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

As shown above, due to the short duration of the maintenance activities (less than four weeks per year), and the minimal amount of equipment necessary for implementation, emissions produced would be minimal and dispersed without significant effects (i.e., emissions would not be considered substantial contributions to regional air quality problems). Due to the insignificant level of maintenance vehicle-related traffic that would be associated with the proposed project and the short-term duration of the occasional use of hand-held mechanized equipment during the four weeks per year maintenance period, implementation of the project would not result in a substantial increase to an existing or projected air quality violation. Consistent with the size and scale of the proposed project, maintenance activities would be considered minor, non-intensive, and less than significant.

As discussed above, emissions of all criteria pollutants, including PM_{10} and $PM_{2.5}$, would be well below the significance thresholds. As a result implementation of the proposed project would not

result in cumulatively considerable impacts to air quality. With regard to cumulative impacts associated with O_3 precursors, in general, if a project is consistent with the community and general plans, it has been accounted for the in O_3 attainment demonstration contained within the State Implementation Plan. The proposed project would not conflict with any land use designation, and would, therefore, not cause a cumulatively significant impact on the ambient air quality for O_3.

The proposed project would not require the use of heavy-duty construction equipment, which is subject to a California Air Resources Board Airborne Toxics Control Measure for in-use diesel construction equipment. In addition, no sensitive receptors are located within the project area. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations.

Limited construction-related odors would be generated from vehicles and/or equipment exhaust emissions during maintenance of the proposed project. However, due to the size and scale of the proposed project, such odors are temporary and generally occur at magnitudes that would not affect substantial numbers of people. Impacts would be less than significant.

5.5 CULTURAL RESOURCES

This section is based on the Cultural Resources Inventory Update for the Inns at Bridgecreek Project prepared by ASM in 2010 and a Paleontological Resource Assessment for the Inns at Bridgecreek Technical Report prepared by the San Diego Natural History Museum Department of PaleoServices in 2010. The Inns at Bridge Creek Project (recently renamed as the Inns at Buena Vista Creek) site is located immediately north of Buena Vista Creek adjacent to the proposed project site, and as such, the two technical studies also studies the proposed channel maintenance program project site.

According to the Cultural Resources Inventory Update, a record search was conducted on May 15, 2010 at the South Coastal Information Center (SCIC) (ASM 2010). The search encompassed a one-mile radius around the project area and identified two isolated artifacts and 21 prehistoric sites, none of which are located within the project area (ASM 2010). Fifty-nine other cultural resources studies have also been conducted within the one-mile radius, four of which are linear surveys associated with SR-78 that border the Inns at Buena Vista Creek project site (ASM 2010). None of these studies identified cultural resources in or adjacent to the proposed project area (ASM 2010).

The Paleontological Resource Assessment Technical Report stated that there are no previous records of fossil localities in the Pleistocene alluvial deposits within the projects Area of Potential Effect (SDNHM 2010, pg. 6). However, because 15 paleontological collecting sites have been recorded within one mile of the project area, and in light of the paleontological guidelines developed by the County of San Diego, the Quaternary alluvial deposits on site are considered to be highly sensitive (SDNHM 2010, pg. 6).

The San Diego Natural History Museum has recorded 15 paleontological collecting sites in correlative deposits as exposed within one mile of the proposed project area (SDNHM 2010, pg. 6). These sites are located within the City of Oceanside to the northwest and within the City of Carlsbad to the southeast (SDNHM 2010, pg. 6). As mentioned, Pleistocene-aged deposits were found during grading activities at the nearby Pacific Coast Plaza and The Summit at Carlsbad (SDNHM 2010, pg. 6). However, no previous records of fossil localities occurring in the Pleistocene alluvial deposits within the project area were found (SDNHM 2010, pg. 6).

Due to the substantial fill in the project area, and that the ground surface within the creek channel is not of natural origin, there is a low likelihood for cultural or paleontological resources to exist within the channel. The project proposes the removal of vegetation along the water's surface or at the base of the vegetation community. Access to perform the proposed maintenance activities will be obtained from a pontoon. Since no grading or other ground disturbance activities are proposed, the project would not result in impacts to archeological or paleontological resources, or unknown human remains.

The Carlsbad General Plan does not identify any historical or archeological sites within its jurisdictional boundary. The Oceanside General Plan identifies three significant historical sites within its jurisdictional boundary including the San Luis Rey Mission, Rancho Guajome, and Grave of Francisco de Ulloa. In addition, the General Plan states that archaeological sites have been reported in the Fire Mountain area and in the Guajome Lake Region. None of these historical or archaeological sites are located within the project vicinity. No historical resources are located within the project area (ASM 2010; NPS 2012). Since the maintenance activities will be contained within the channel no impacts to historical resources would result.

5.6 GEOLOGY AND SOILS

The project site is located within seismically active southern California, an area where several faults and fault zones are considered active by the California Division of Mines and Geology. Alquist-Priolo earthquake fault zones have been established for the majority of these faults and fault zones. The purpose of the Alquist-Priolo earthquake fault zones is to prohibit the location of structures on the traces of active faults, thereby mitigating potential damage due to fault surface rupture. According to the California Department of Conservation Geological Survey, the cities of Carlsbad and Oceanside are not listed as being affected by an Alquist-Priolo earthquake fault zone (California Geological Survey 2007).

Since the project site is located in a region of known seismic activity, it is therefore, subject to moderate to severe ground shaking in the event of a major earthquake along any of the active faults in the region. However, the proposed project would not build housing or structures on the site. The proposed maintenance activities would serve to maintain the design contours and elevations of the stream channel. The channel contours and elevations would remain the same,

and no grading or other ground disturbing activities are proposed. Therefore, the proposed project would not result in impacts from strong seismic ground shaking or seismic-related ground failure (including liquefaction, landslides, lateral spreading, subsidence, or expansive soils). In addition, the project would not result in substantial soil erosion or the loss of topsoil. Therefore, impacts to geology and soils would be less than significant.

5.7 GREENHOUSE GAS EMISSIONS

Per the California Global Warming Solutions Act of 2006 (Assembly Bill 32), global warming is generally the result of greenhouse gas emissions (GHGs) caused by carbon dioxide emissions. Those emissions are primarily caused by the burning of fossil fuels such as vehicle emissions or increased energy consumption. The channel maintenance program proposes to continue to remove vegetation, by hand with machetes and scythes, and if necessary hand-held mechanical tools (e.g., weed whackers and chainsaws), along the stream channel within the maintenance district. During the proposed maintenance activities, emissions would be limited to motor vehicles generated from workers traveling to and from the project site for four weeks or less per year and approximately two to three maintenance vehicles are on site during maintenance. Therefore, the proposed project would not result in a significant amount of carbon dioxide emissions.

Assembly Bill (AB) 32 was passed in 2006 and requires that by 2020, state emissions must be reduced to 1990 levels by reducing GHG emissions from significant sources via regulations, market mechanisms, and other actions.

Senate Bill (SB) 375 was passed in 2008. This bill links transportation and land use planning with global warming. It requires the Air Board to set regional targets for the purpose of reducing GHG emissions from passenger vehicles. Under this law, if regions develop integrated land use, housing, and transportation plans that meet SB 375 targets, new projects in these regions can be relieved of certain review of requirements under CEQA.

The project's impact on GHG emissions is determined by analyzing the types and levels of GHG emission generated. The GHG emission generated by the proposed maintenance activities would mainly be from carbon dioxide (CO2) from on-road and off-road trucks traveling to and from the project site and hauling vegetation off the site. The project's GHG emissions were modeled using URBEMIS 2007 and were estimated to be 4.44 metric tons of CO2 equivalent per year.

To implement state mandates to address climate change in local land use planning, local land use jurisdictions are generally preparing GHG emission inventories and reduction plans and incorporating climate change policies into local General Plans to ensure development is guided by a land use plan that reduces GHGs. The South Coast Air Quality Management District has provided suggested guidelines for GHG significance thresholds which are 10,000 metric tons of CO_2 equivalent per year (SCAQMD 2008). In addition, the California Air Resources Board has provided a suggested significance threshold of 7,000 metric tons of CO_2 equivalent per year

(CARB 2008). Based on these thresholds, the project's contribution to global climate change is not cumulatively considerable and impacts are less than significant.

The channel maintenance program proposes to continue the removal of vegetation along the stream channel within the maintenance district. Vegetation removal would be conducted by hand and assumes that hand-held mechanized equipment could be used for maintenance activities and during the exotics removal (which is a component of the mitigation program). Two to three maintenance vehicles would be used on site to haul vegetation. Since on-site equipment for the project would be limited to two to three motor vehicles, and the short term use of hand-held mechanized equipment for less than four weeks per year, the project would not result in significant amounts of carbon dioxide emissions and would not impede the implementation of AB 32 reduction targets. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

5.8 HAZARDS AND HAZARDOUS MATERIALS

Maintenance activities within the channel would be conducted with non-mechanized hand tools (e.g., machetes and scythes) and if necessary would allow hand-held mechanized tools such as chainsaws. The use of mechanized equipment could result in chemical pollution form the release of fuels, oils, lubricants, or other materials. Additionally, Mitigation Measure BIO-1 addresses the use of herbicides. The improper use of herbicides could cause unauthorized impacts to native vegetation, resulting in loss, degradation, and potential fragmentation both on site and downstream, and could also adversely affect aquatic and terrestrial wildlife, through impacts on quality and forage and prey availability. However, all hazardous materials used during the maintenance activities and the removal of exotic species would follow the guidelines stated in the standard best management practices (BMPs) to ensure that all hazardous materials are stored properly and that no hazards occur. In addition, any transport of hazardous fuels would occur in accordance with standards set forth by the Cities of Carlsbad and Oceanside, and the state and federal health and safety requirements; therefore, significant risk to the surrounding community is not anticipated.

No schools are located within a quarter mile of the project site. In addition, the project is not located within the vicinity of a private airstrip or within an airport land use plan. Therefore, impacts in this regard would not result from implementation of the proposed project.

A Phase I Environmental Site Assessment (ESA) for Jefferson Street and State Highway 78 was prepared for the Inns at Buena Vista Creek Project (Dudek 2010). As mentioned previously the Inns at Buena Vista Creek project site is located immediately adjacent to the proposed project site, just north of Buena Vista Creek. The Phase I ESA included a database search obtained from Environmental Data Resources, Inc. (EDR). The report documents finding of various federal, state, and local regulatory database searches regarding properties with known or suspected releases of hazardous materials, chemical handlers, and/or polluters. The searches were performed according to

American Society for Testing Materials standards for Phase I ESA database searches. The EDR report identified 14 sites located within 1 mile of the Inns at Buena Vista Creek site. However, according to the Phase I report, none of off-site listings presented environmental concerns for the project site. Furthermore, a review of the California Department of Toxic Substance Control's Hazardous Waste and Substances List – Site Cleanup (Cortese List) indicates that identified hazardous materials sites are not located within the project site (DTSC). Therefore, the project would not create a significant hazard to the public or the environment from such hazardous materials.

According to the City of Oceanside's Public Safety Element, the main through streets and highways within the City would be the primary relocation routes for people who are forced from their homes during a disaster. The major streets within the project area that are identified as a relocation route are Interstate 5, SR-78, and El Camino Real. The project site is located immediately adjacent to SR-78. Primary access to SR-78 from the project site would be provided from Jefferson Street, while secondary access would be provided from El Camino Real. The project would not result in any road closures or impacts to roadways that would impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

The project site is located within the channel of Buena Vista Creek. While this area is undeveloped and constitutes urban wildlands, the proposed maintenance activities would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. Therefore, impacts would be less than significant.

5.9 LAND USE AND PLANNING

The proposed project would include the removal of vegetation from the northern half of the channel from the upstream face of Jefferson Street Bridge, which is in the coastal zone, to the downstream face of South Vista Way Bridge. Surrounding land uses include open space, undeveloped land and SR-78 to the north, commercial uses to the east and south, and a sewer pump station, Jefferson Street, and Buena Vista Lagoon to the west. All project-related activities would occur within the streambed or along an easement to the north of the Creek dedicated for vehicular access of the streambed. The proposed maintenance activities would not have an impact on the physical arrangement of an established community.

Several local and regional plans regulate development of the project area including the City of Carlsbad General Plan, Zoning Ordinance, Habitat Management Plan (HMP), the City of Oceanside General Plan, Zoning Ordinance, and the North San Diego County Multiple Habitat Conservation Program (MHCP). The project area is also located within the City of Carlsbad Local Coastal Program or the City of Oceanside Local Coastal Program.

The City of Carlsbad General Plan Land Use Map designates the Buena Vista Creek area as Open Space (OS) and the area surrounding the creek as Regional Commercial (City of Carlsbad 2012b). The City of Carlsbad Zoning Map designates the project site as Open Space (OS) and

the area surrounding the creek as General and Neighborhood Commercial (City of Carlsbad 2012a). The proposed project would not change or conflict with these designations.

The City of Oceanside Land Use Map designates the project area as Special Commercial (SC) and the City of Oceanside Zoning Map designates the project area as Special Commercial Highway Oriented (SC-HO). The proposed project would not change or conflict with these designations.

The San Diego Association of Governments (SANDAG) MHCP covers the cities of Carlsbad, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista. Each jurisdiction implements their portion of the SANDAG MHCP through citywide subarea plans. The City of Carlsbad implements the MHCP through the City of Carlsbad HMP and the City of Oceanside will implement the MHCP through the City of Oceanside Draft Oceanside Subarea Habitat Conservation Plan/Natural Communities Conservation Plan, which is currently in Draft form.

The City of Carlsbad HMP Vegetation Map designates the project site as Riparian Scrub, Woodland, and Forrest, and the area surrounding the creek as Urban/Disturbed. According to the City of Carlsbad's Draft HMP, the Buena Vista Lagoon comprises the majority of Core 1. Core 1 is connected to Core 2 via Buena Vista Creek, portions of which lie within the City of Oceanside. The channelized creek connects these two Cores, and is lined by a continuous strip of riparian scrub, except where El Camino Real crosses the creek. This extremely narrow strip of riparian habitat may function as a wildlife movement corridor for some birds and mammals, including coyotes, but it is not considered a landscape-level linkage (City of Carlsbad 2004). Biological Resources are addressed in *Section 4.1, Biological Resources,* of this EIR and impacts of the proposed project have been found to be less than significant with incorporation of mitigation.

Under the City of Oceanside's Draft Oceanside Subarea Plan, this portion of Buena Vista Creek is designated a portion of a Regional Corridor for the federally listed threatened coastal California gnatcatcher. However, the project area is not within the designated Wildlife Corridor Planning Zone, and therefore, the project area is not subject to any regulatory or land use conditions (Oceanside Draft Subarea Plan 2000). Therefore, impacts would be less than significant.

The City of Carlsbad Local Coastal Program was established in 1996 and was most recently amended in 2006. The City of Carlsbad Local Coastal Program consists of the following five geographic areas: Agua Hedionda Lagoon, Carlsbad Mello I, Carlsbad Mello II, West Batiquitos Lagoon/Sammis Properties, and east Batiquitos Lagoon/Hunt Properties. The project site is located within the Carlsbad Mello II segment (and is also partially located within the original permit jurisdiction of the California Coastal Commission). The proposed maintenance project would be consistent with the Carlsbad Local Coastal Program as the proposed maintenance activities would reduce flooding in the Maintenance District and would remove the minimum amount of vegetation required to provide flood protection. The City of Carlsbad will obtain a

Coastal Development Permit from the California Coastal Commission for the maintenance activities that would occur within the Coastal Zone.

The City of Oceanside adopted their Local Coastal Program in 1980, and subsequently amended in 1985. The boundaries of the Land Use Plan include Buena Vista Lagoon and the San Luis Rey River upstream to approximately 0.4 miles west of Canyon Drive. The Local Coastal Program calls for protection of these areas as natural resources and encourages the maintenance of a 100-foot-wide buffer from the lagoon and river. This program outlines goals, policies, and programs to ensure appropriate development and land uses with the coastal area. The City's Local Coastal Program Land Use Map designates the project site as General Commercial. The channel maintenance program proposes to continue the removal of vegetation along the stream channel to provide flood protection within the maintenance district. Vegetation would be cut at ground level or the water surface and be hauled out of the channel and disposed of appropriately. No ground disturbance would occur during the proposed project. The proposed maintenance activities would not result in the construction of any structures, dredging, or the impediment of public access within the Coastal Zone. Therefore, the proposed project would be consistent with the City of Oceanside Local Coastal Program policies. Impacts to land use would be less than significant.

5.10 MINERAL RESOURCES

The proposed maintenance project would not result in the loss of availability of a known mineral resource that would be of value to the immediate region or the residents of the state. The proposed project would not involve the disruption of existing mineral extraction operations. Locally-important mineral resource recovery sites have not been identified within the General Plans of the cities of Carlsbad or Oceanside. Implementation of the proposed maintenance project would therefore not interfere with the extraction of any mineral resource of local importance, and impacts would be less than significant.

5.11 NOISE

The channel maintenance program proposes to continue the removal of vegetation along the stream channel within the maintenance district. Vegetation removal would be conducted with non-mechanized hand tools such as machetes and scythes and if necessary, would allow hand-held mechanized tools such as chainsaws. All of the equipment is currently used under the existing ongoing maintenance program. As under the current maintenance program, two to three maintenance vehicles would be used to provide access to the project site and to haul vegetation.

Surrounding land uses include open space, undeveloped land and SR-78 to the north, commercial uses to the east and south, and a sewer pump station, Jefferson Street, and Buena Vista Lagoon to the west. There are no noise-sensitive residential receptors in close proximity to the site. The maintenance activities would be consistent with current channel maintenance program noise and would not result in a substantial increase in ambient noise levels. Impacts would be less than

significant. The removal of vegetation would not result in long-term noise impacts to sensitive receptors, nor would hauling vehicles associated with disposal of the vegetation. Additionally, due to the relatively short duration and type of maintenance activities proposed, the increase in ambient noise levels would not be considered significant.

The proposed project is not located within the vicinity of a private airstrip. The closest airport to the project site is Oceanside Municipal Airport; which is located approximately 2.7 miles north of the project site. There is no airport land use plan for the area, and the proposed project would be located more than two miles from the airport. Furthermore, the proposed project would not result in noise impacts on surrounding land uses, as discussed above.

The vegetation removal would occur only in freshwater marsh and the understory of southern willow scrub; no trees, including riparian trees, would be removed during channel maintenance. Vegetation would not be removed between March 15 to September 15 to avoid impacts to most nesting birds in accordance with the Migratory Bird Treaty Act. Therefore, increased noise to nesting birds would be less than significant.

5.12 POPULATION AND HOUSING

The project proposes the continued maintenance of an engineered stream channel for flood control purposes. The proposed maintenance project would not result in the displacement of housing or people. In addition, the continued maintenance of the creek channel would not result in the development of any houses, businesses or infrastructure. Therefore, the proposed project would not result in a demand for additional housing or increase population. Therefore, no impacts to population and housing would result.

5.13 PUBLIC SERVICES

The proposed project would not require the development of new or physically alter any government facilities. The proposed maintenance program would not constitute an additional demand on current fire or police protection services, or school or libraries as the project would not result in a population increase.

5.14 RECREATION

The proposed project would not alter existing recreational facilities within the project vicinity. The proposed project would not increase demand on surrounding recreational facilities, nor would it cause substantial physical deterioration to these facilities. In addition, the proposed channel maintenance project would not increase population, and therefore, would not cause the demand for the construction of new recreational facilities. Therefore, no impacts to recreational facilities would result from implementation of the proposed project.

5.15 TRANSPORTATION AND TRAFFIC

The proposed project would not create a significant increase in local traffic levels. Maintenance vehicle traffic associated with vegetation removal would be consistent with current maintenance program operations, which requires approximately three trips per day for 20 days a year to South Vista Way, El Camino Real and Oceanside Boulevard. The addition of these daily trips to nearby roadways would not significantly impact current traffic flow rates. The project would not conflict with an applicable plan, ordinance or policy that establishes measures of effectiveness for performance of the circulation system. In addition, the number of vehicle trips generated by the project would not result in deficient levels of service (LOS) or result in a cumulatively considerable contribution to traffic in the project area.

The proposed project would not necessitate the need for road closures or other activities that would decrease the performance or safety of public transit, bicycle or pedestrian facilities, and impacts would be less than significant.

5.16 UTILITIES AND SERVICES

The proposed project consists of maintenance activities along Buena Vista Creek and would not result in additional needs for new public utility or service systems or the expansion of existing facilities. The proposed project would not generate wastewater; therefore, the project would not exceed wastewater treatment requirements. Disposal of solid waste generated during project maintenance activities would be disposed of in a manner consistent with federal, state, and local statutes and regulations. The green waste generated by the proposed maintenance would continue to be deposited at El Corazon Green Waste Recycling Facility. Therefore, the proposed maintenance project would not result in impacts to utilities or service systems.

5.17 ENERGY

Energy usage for this project is limited to the fuel needed for the maintenance workers to travel to and from the project site and the occasional use of a chainsaw. Maintenance vehicle trips associated with vegetation removal would be consistent with current maintenance program operations, which require approximately three trips per day for 20 days a year. The City proposes to conduct the maintenance by hand with machetes and scythes whenever possible. However, if the vegetation is too thick and cannot be cut with these non-mechanized tools, then hand-held mechanical tools, such as a chainsaw, would be used to cut the vegetation. The amount of energy required to continue to operate three vehicles for 20 days a year, and the occasional use of a chain saw no more than 20 days per year, would not require a large consumption of energy. The project would also not result in a significant effect on local or regional energy supplies. Therefore, the project would not result in a significant impact on energy resources.

CHAPTER 6
OTHER CEQA REQUIREMENTS

The State California Environmental Quality Act (CEQA) Guidelines require the discussion of the cumulative impacts, growth-inducing impacts, significant irreversible environmental changes, and unavoidable significant environmental effects (State CEQA Guidelines Sections 15126, 15128 and 15130). The following sections address these issues as they relate to adoption and implementation of the proposed project.

6.1 CUMULATIVE IMPACTS

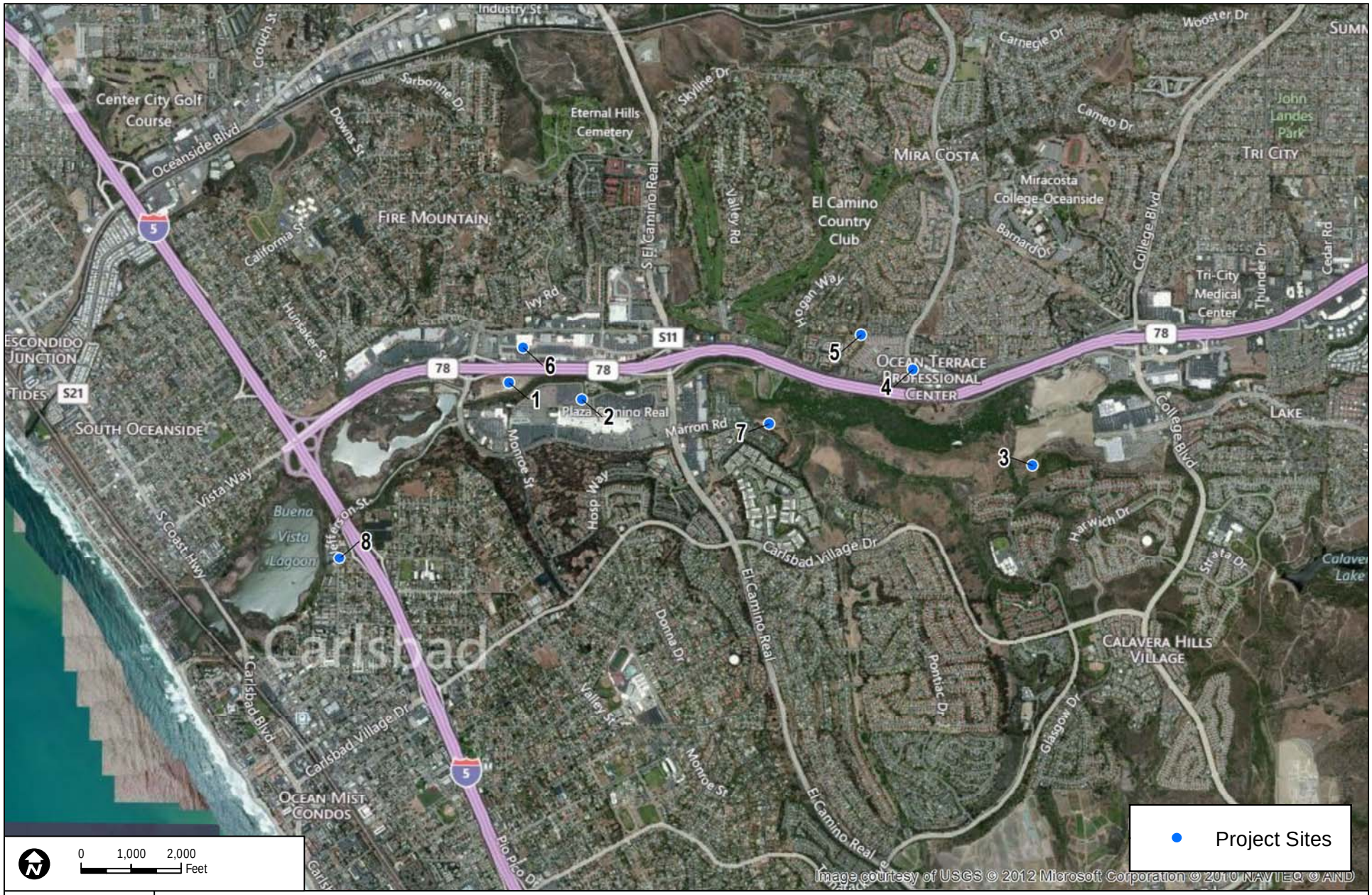
Although the environmental effects of an individual project may not be significant when that project is considered independently, the combined effects of several projects may be significant when considered collectively. Such impacts are "cumulative impacts." Section 15355 of the CEQA Guidelines defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines provides guidance for analyzing significant cumulative impacts in an Environmental Impact Report (EIR). According to this section of the CEQA Guidelines, the discussion of cumulative impacts "...need not provide as great detail as is provided for the effects attributable to the project alone. The discussion should be guided by standards of practicality and reasonableness." The discussion should also focus only on significant effects resulting from the project's incremental effects and the effects of other projects.

6.1.1 Cumulative Projects

CEQA Guidelines Section 15130(b)(1)(A) allows for the preparation of a "list of past, present, and probable future projects" as a viable method of determining cumulative impacts. This discussion utilizes the following approach: generation of an initial list and description of related projects, followed by a discussion of the effects that the project (combined with the list) may have on each environmental category of concern (e.g., biological resources and hydrology and water quality).

Related projects that need to be considered with respect to cumulative impacts include those that would contribute to impacts on the same environmental resources, infrastructure or public services and facilities that would also be impacted by the proposed project. This could include projects located outside of the Lead Agency's jurisdiction. For the purpose of this EIR, a list of approved and projected future projects was compiled to develop a reasonable estimate of the cumulative impacts that would occur within proximity to the project area and upstream of the project along Buena Vista Creek, in the jurisdictions of both Carlsbad and Oceanside. The location of these projects is illustrated in *Figure 6-1, Cumulative Projects Map*. A brief description of these projects is presented below; the numbers correspond to the locations shown on *Figure 6-1*.

1. Inns at Buena Vista Creek Hotel Development: Located immediately north of the proposed channel maintenance program, and east of the Jefferson Street interchange with SR-78 in the cities of Oceanside and Carlsbad, this project would develop a business hotel, an extended stay hotel and a family-oriented vacation-type hotel with approximately 426 rooms.
2. Plaza Camino Real Revitalization Project: Located at El Camino Real and Plaza Drive in the City of Carlsbad, the project would develop 148,159 square feet of leasable space and a 35,417 square foot commercial expansion to the existing Westfield Mall.
3. Quarry Creek: Located south of Haymar Drive between College Boulevard and El Camino Real in the City of Carlsbad, this project proposes approximately 656 residential units and a vehicle bridge over Buena Vista Creek on a 146 acre property.
4. Ocean Terrace: Located in the City of Oceanside at the southeast corner of Rancho Del Oro Road and Vista Way, this project would include 10 low-rise medical or professional office buildings totaling approximately 101,000 square feet on 9.65 acres.
5. Monarch at Rancho Del Oro (Piazza De Oro): Located at the northwest corner of Vista Way and Rancho Del Oro Drive in the City of Oceanside, this project would construct a mixed-use development consisting of 28,544 square feet of commercial uses, 201 residential condominium units and 20 live-work units.
6. LA Fitness: Located at 2335 Vista Way in the City of Oceanside, this project includes renovation of an existing 75,024 square foot building for use as a gym.
7. Marron Road Extension: This project would extend Marron Road from approximately 200 feet east of its intersection with Avenida de Anita to 1,500 feet west of its intersection with Lake Boulevard, providing a continuous four-lane major arterial between Jefferson Street and Lake Boulevard.
8. Buena Vista Left Sewer Lift Station Sewer Force Main: This project would relocate the existing sewer line within the Buena Vista Lagoon Area, onto the Jefferson Street and Las Flores right-of-ways as a result of damage caused by sewer spills within Buena Vista Creek. This project is under construction and is anticipated to be completed in late 2012.



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SOURCE: USGS 7.5-Minute Series San Luis Rey Quadrangle.

FIGURE 6-1

Cumulative Projects Map

BUENA VISTA CREEK CHANNEL MAINTENANCE PROJECT - ENVIRONMENTAL IMPACT REPORT

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6.1.2 Cumulative Impact Analysis

Biological Resources

As discussed in *Section 4.1, Biological Resources,* the proposed project would result in direct temporary impacts to vegetation communities and land cover types including freshwater marsh, Southern willow scrub, and open water. Implementation of Mitigation Measures BIO-1 and BIO-2 would reduce these impacts to less than significant levels. Potential short-term indirect impacts to vegetation communities, including fugitive dust, increased human activity, and the introduction of chemical pollutants (including herbicides), would be significant; however implementation of Mitigation Measure BIO-2 would reduce these impacts to less than significant levels. All of these impacts are directly related to vegetation removal which would occur within the designated 11.2-acre project area as a result of the proposed project. Vegetation removal is not proposed for areas proposed to be developed by the listed cumulative projects. Specifically, Mitigation Measure BIO-1 would require on-site enhancement to mitigate temporary impacts to special status vegetation communities, Mitigation Measure BIO-2 would prevent inadvertent disturbance to areas outside the limits of the maintenance areas by requiring monitoring by a biologist, and Mitigation Measure BIO-3 would reduce indirect impacts to nesting birds by avoiding maintenance activities during the breeding season.

It is anticipated that cumulative impacts to sensitive biological resources could be mitigated on a project-by-project basis by preservation of open space within project boundaries and revegetation efforts, as well as through compliance with appropriate permit conditions determined by the CDFW, ACOE, RWQCB, and U.S. Fish and Wildlife Service (USFWS). The proposed channel maintenance program includes avoidance and minimization features and mitigation measures that reduce both the project-specific impacts and the project's contribution to cumulative biological resources impacts to below a level of significance.

In an effort to avoid and minimize cumulative impacts to sensitive biological resources throughout San Diego County, the cities of Carlsbad and Oceanside have participated in a regional conservation planning effort, the North San Diego County MHCP. This planning effort provides a regional plan for preservation and mitigation of sensitive biological resources within San Diego County. General biological resource core areas as well as essential wildlife linkages are outlined in this plan. The Carlsbad HMP and Oceanside Subarea Plan further addressed specific preserve areas, implementation techniques and management parameters unique to lands within city boundaries consistent with the MHCP. The Carlsbad HMP and Oceanside Subarea Plan serve as the implementation tools for the Carlsbad and Oceanside portions of the overall San Diego County preserve system. This program addresses cumulative biological effects on a jurisdictional and regional level for MHCP-covered species in the MHCP Plan Area. The implementation of mitigation measures to address site specific impacts and the project's consistency with these plans reduces potential cumulative impacts to biological resources to a less than significant level.

Hydrology and Water Quality

Implementation of the proposed maintenance program in conjunction with other planned projects within the cities of Carlsbad and Oceanside would not result in significant cumulative impacts to water quality. As discussed in *Section 4.2, Hydrology and Water Quality,* the proposed project would not result in runoff or discharge and there would be no erosion or sedimentation associated with the project. Vegetation would be cut at ground level or the water surface and hauled out of the channel and disposed of appropriately. Therefore, a Clean Water Act, Section 401 and 404 permit issued by the RWQCB and the ACOE is not required for the proposed project because no fill or dredge would occur during the proposed maintenance activities. Furthermore, the proposed maintenance regime will reduce potential flooding impacts from existing levels and improve conditions along the creek. The proposed project would also avoid and minimize impacts to water quality and to special-status biological resources in the channel.

Runoff from project maintenance areas could potentially result in water quality impacts to Buena Vista Creek due to accidental spills. However, the water quality impacts associated with the channel maintenance program would be short term and less than significant with incorporation of Mitigation Measure HYDRO-1. Because the proposed project would result in less than significant impacts and beneficial improvements to Buena Vista Creek, cumulative impacts would not be considerable. In addition, compliance by all surrounding projects with applicable federal, state and county regulations for stormwater and construction discharges would assure that potential cumulative impacts to water quality remain below a level of significance.

6.2 GROWTH-INDUCING IMPACTS

CEQA requires a discussion of ways in which the proposed project could be growth inducing. The CEQA Guidelines identify a project as growth inducing if it fosters economic or population growth, or the construction of additional housing either directly or indirectly in the surrounding environment (CEQA Guidelines, Section 15126.2[d]). New employees from commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in the area. A project could indirectly induce growth by reducing or removing barriers to growth, or by creating a condition that attracts additional population or new economic activity. However, a project's potential to induce growth does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the private or public sectors. According to CEQA Guidelines, Section 15126.2(d), "it must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment."

The proposed project would not directly induce growth because it does not include any new land uses, including commercial or residential uses. The project would be implemented by maintenance staff currently employed by the City and therefore indirect growth would not occur as a result of new job opportunities created by the project. In addition, development of the proposed project would not remove any physical barriers to growth. Therefore, growth inducement is not expected to occur as a result of the proposed project.

6.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA Guidelines mandate that an EIR must address any significant irreversible environmental changes that would be involved in the proposed action should it be implemented (CEQA Guidelines, Section 15126(c)). An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations of people to similar uses;
- The project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; and/or
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

The proposed project would not construct or otherwise develop the project area. Rather, an ongoing maintenance program is proposed which would not result in irreversible damage or consumption of resources. Potential impacts to biological resources would be reduced to a less than significant level with implementation of mitigation measures identified in *Section 4.1*. The project would require the use of non-renewable resources in the form of fuel for maintenance vehicles accessing the site and hauling vegetation. This use would not be unusual or extraordinary, and, as a result, there would be no significant irreversible environmental effects related to resource consumption. Therefore, this would not be considered a significant environmental impact.

6.4 UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL IMPACTS

Analysis of environmental impacts caused by the proposed project has been performed and is contained in *Chapter 4, Environmental Impacts and Mitigation Measures*. No unavoidable significant environmental impacts were identified in this EIR.

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CHAPTER 7
ALTERNATIVES

7.1 INTRODUCTION

Section 151266.6 of the State California Environmental Quality Act (CEQA) Guidelines requires the discussion of "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluates the comparative merits of the alternatives." The alternatives discussion is intended to focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project objectives as listed in *Chapter 4, Environmental Analysis,* of this environmental impact report (EIR).

Pursuant to the guidelines stated above, a range of alternatives to the proposed project are considered and evaluated in this EIR. These alternatives were developed in the course of project planning, and environmental review. The discussion in this section provides:

1. A description of alternatives considered.
2. An analysis of whether the alternatives meet the objectives of the proposed project (described in *Section 3.1.2, Project Objectives,* of this EIR).
3. A comparative analysis of the alternatives under consideration and the proposed project. The focus of this analysis is to determine if alternatives are capable of eliminating or reducing the significant environmental effects of the project to below a level of significance.

The objectives of the Buena Vista Creek Channel Maintenance Project are listed in *Section 3.1.2* of this EIR and restated here for reference purposes:

1. To maintain an ongoing; 20-year channel maintenance program that provides a direct benefit, such as flood control, to the properties and parcels in the Maintenance District boundaries (City of Carlsbad 1989).
2. Within the Maintenance District boundaries, provide periodic cleaning of the overgrowth that impedes the free flow of water in the Buena Vista Creek channel (City of Carlsbad 1989).
3. To expand the current maintenance program downstream to include the portion of the Buena Vista Creek channel from the Coastal Zone boundary downstream to the Jefferson Street bridge (i.e., from Channel Station 1.214 to Channel Station 1.030).
4. To obtain the required resource agency permits to continue maintaining the channel as required by the terms of the Maintenance District (City of Carlsbad 1989).
5. To maintain an ongoing channel maintenance program to provide flood protection within the Maintenance District boundaries while reducing impacts to biological resources.

7.2 ALTERNATIVES CONSIDERED BUT REJECTED

7.2.1 Upstream Expansion of Buena Vista Creek

In response to comments received during the public scoping period, areas upstream of the project site were considered as part of the alternatives process. Comments received during the scoping period did not specify a location for this alternative. The key question and first step in analysis of an off-site location "is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location" (14 CCR 15126.6(f)(2)(A)).

As discussed in the Hydraulic Report, the recent changes in land development upstream from the project site have provided a marginal benefit to the flood levels within the maintenance district (Chang Consultants 2013).

The area upstream from the proposed project site is located outside the maintenance district. Land use restrictions currently cover upstream portions of the creek, such as permanent open space designations including hardline conservation easements and preserve systems, which only allow activities such as biological enhancement. This alternative would not meet project objectives 1, 2, 3, and 5 because it would not benefit properties and parcels in the Maintenance District boundaries. Therefore, an upstream alternative would not meet the project objectives and would result in additional environmental impacts. Accordingly, this alternative was eliminated from further consideration.

7.2.2 Pilot Channel Alternative

In response to comments received during the public scoping period, a pilot channel of up to 10 feet wide within the vegetated creek was considered as a project alternative, in an effort to avoid the need to conduct annual maintenance activities within the creek. While this alternative would provide a slightly lower water surface elevation in some areas, it is also likely that a 10-foot-wide pilot channel would not result in much improvement over the existing pilot channels that naturally exist (Chang Consultants 2013). As such, the maintenance activities would still be required to reduce the flood levels in the project area. In addition, a pilot channel of this size could be more subject to clogging during minor flow events. Since this alternative would not result in a reduction in impacts to biological resources, or hydrology and water quality, it was eliminated from further consideration.

7.2.3 Removing Existing Concrete Lining within Buena Vista Creek

In response to comments received during the public scoping period, the removal of the existing concrete lining within upstream portions of Buena Vista Creek was examined. The creek currently has a concrete-lined channel from South Vista Way to upstream of El Camino Real.

Concrete has a low resistance to flow, and hence, provides a greater capacity than a naturally-lined channel. Concrete is also more resistant to bank erosion, and since the relatively narrow channel in this reach can experience erosive flow velocities, local scour could occur at the existing bridge piers at both road crossings. If left unprotected, the channel could be subject to erosion and the bridge piers could be subject to resultant failure (Chang Consultants 2013). Since the removal of the concrete lining would increase flooding and result in the potential for scour, it could create additional environmental impacts and hence was eliminated from further consideration.

7.3 ALTERNATIVES UNDER CONSIDERATION

Pursuant to CEQA Guidelines Section 15126.6, an analysis of alternatives is presented in this document to provide decision makers with a range of possible alternatives to be considered. The CEQA Guidelines state that an EIR shall describe a reasonable range of alternatives that would avoid or substantially lessen any significant effects of the project, but need not consider every conceivable alternative.

The discussion in this EIR focuses on five alternatives:

- No Project Alternative
- Alternative 1: Vegetation Clearing of the Entire Channel Bed Every Year
- Alternative 2: Vegetation Clearing from One-Half of the Channel Bed Every Year
- Alternative 3: Vegetation Clearing from One-Half of the Channel Bed Every 3 Years
- Alternative 4: Vegetation Clearing from One-Half of the Channel Bed Every 6 Years.

These alternatives are directed at avoiding or lessening the significant environmental impacts of the project. As identified in *Sections 4.1, Biological Resources,* and *4.2, Hydrology and Water Quality,* significant impacts of the project would result in the topics of Biological Resources and Hydrology and Water Quality. The analysis of alternatives in this chapter provides a comparison analysis of alternatives.

The hydraulics of each of these alternatives were analyzed in the *Hydraulic Analysis for Buena Vista Creek Channel Maintenance* (Chang Consultants 2013).

7.3.1 No Project Alternative

The purpose of describing and analyzing a no project alternative is to allow a lead agency to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The No Project Alternative assumes that the existing maintenance activities in the northern half of the channel and the associated mitigation, exotics removal in the southern half of the channel, would cease in December 2013. The No Project Alternative would not

achieve project objectives 1, 2, 3, or 4 since it would not maintain the channel maintenance program, which provides flood protection for properties within the Maintenance District. It would not provide periodic clearing of overgrowth that impedes the free flow of water within Buena Vista Creek and would not expand the channel maintenance program west to Jefferson Street bridge. In addition, the No Project Alternative would result in the expiration of the current permits at the end of 2013, and no new permits would be issued to continue the current maintenance activities.

Biological Resources

If no maintenance occurred in the channel, 5.08 acres of Buena Vista Creek Channel would not be maintained. More specifically, the No Project Alternative would avoid significant direct temporary impacts to approximately 3.67 acres of freshwater marsh and approximately 1.28 acres of understory species in southern willow scrub over a 5-year period. Unforeseen temporary direct impacts during maintenance outside of the maintenance footprint would also be avoided under the No Project Alternative.

Potentially significant short-term, indirect impacts such as the generation of fugitive dust, increased human activity, and the introduction of chemical pollutants would be avoided under the No Project Alternative. In addition, potential long-term indirect impacts, from changes in hydrology and hydraulics on biological resources and the introduction of non-native invasive species, to special-status vegetation communities, jurisdictional waters, and suitable habitat to special-status wildlife, would be avoided under the No Project Alternative.

Hydrology and Water Quality

Under the No Project Alternative, the existing channel maintenance activities would cease at the end of 2013. Therefore, commencing in 2014, vegetation within Buena Vista Creek would start to become overgrown and would impede the free flow of water. On the northern bank of the channel, a 100-year flood event would overtop the banks for a considerable channel length, and in order to provide 100-year flood protection, the levee would need to be improved and raised at least 3 feet. Similarly, on the southern side of the channel, the sewage treatment plant (located between Channel Stations 1.532 and 1.597; see *Figure 3-1*, *Proposed Maintenance Area*) is separated from the channel by a levee, which would need to be improved and raised at least 3 feet to provide 100-year flood protection of the treatment plant under the No Project Alternative (Chang Consultants 2013). Improving and raising the levees in these areas is not within the scope of services provided by Maintenance District (City of Carlsbad 1989) and would result in additional impacts to water quality when compared to the proposed project. The No Project Alternative would avoid the potential impacts related to potential spills that could result under the proposed project.

On the southern bank of the channel, without additional channel maintenance (i.e., the No Project Alternative), overtopping of the banks during a 100-year flood event would occur just upstream of Channel Station 1.030 to Channel Station 1.174 and just upstream of Channel Station 1.296 to the South Vista Way bridge (*Figure 3-1*) inundating the adjacent parking lot in the Maintenance District. The flood water from the parking lot carries pollutants into the creek which adversely affects the water quality. Therefore, as under the proposed project, this alternative could result in significant impacts to flood hazards and water quality.

7.3.2 Alternative 1: Vegetation Clearing of the Entire Channel Bed Every Year

Alternative 1 includes hand removal of vegetation within the entire channel, including both the northern and southern half of the channel, between the upstream face of Jefferson Street bridge east to the downstream face of the South Vista Way bridge every year. All vegetation would be cut at ground level or the water surface and hauled out of the channel and disposed of appropriately. Maintenance activities would occur over a very short duration; typically maintenance activities occur over a 4-week or less period per year.

Alternative 1 would achieve project objectives 1, 2, 3, and 4 since it would maintain the channel maintenance program for the Maintenance District to provide continued flood protection for properties within the Maintenance District. It would provide periodic clearing of overgrowth that impedes the free flow of water within Buena Vista Creek and would expand the channel maintenance program west to Jefferson Street bridge. In addition, permits to continue the proposed maintenance activities could be achieved with this alternative.

Biological Resources

Clearing the entire channel annually would be considered a permanent impact because while freshwater marsh habitat typically passively revegetates within 6 months of being removed, southern willow scrub would not be able to recover before the next annual clearing event.

Alternative 1 would result in approximately 10.9 acres of permanent impacts to special-status vegetation communities and wetlands/waters under the jurisdiction of the ACOE, CDFW, RWQCB, and/or CCC, as shown in *Table 7-1, Impacts to Vegetation Communities under Alternative 1*.

Table 7-1
Impacts to Vegetation Communities under Alternative 1

Vegetation Community	Acres of Impact
Freshwater Marsh	5.90
Mulefat Scrub	0.63
Open Water	0.17
Southern Coastal Saltmarsh	0.11
Southern Willow Scrub	4.06
Total	**10.88**

Permanent impacts to suitable habitat for special-status species that have been observed or have a moderate potential to occur (Appendix H of SEIR Appendix B, Biological Resources Report) including riparian woodland and scrub bird species, freshwater marsh and other wetland bird species, and amphibians and reptiles are expected to occur under Alternative 1 and not under the proposed project. Similar to the proposed project, unforeseen temporary direct impacts during maintenance outside of the maintenance footprint could also potentially occur under Alternative 1. Permanent impacts to special-status amphibians and reptiles individuals are more likely to occur with annual maintenance.

Similar to the proposed project, Alternative 1 would avoid permanent impacts to nesting birds because the vegetation removal activities would not occur during the breeding season (March 15 through September 15). Additionally, under Alternative 1 and the proposed project, impacts to Dulzura pocket mouse are not anticipated because coastal sage scrub would not be impacted and foraging bats would not be impacted. Indirect impacts under Alternative 1 would be similar to the proposed project.

Hydrology and Water Quality

An annual maintenance regime that includes removal of vegetation within the entire channel annually would overtop the northern channel banks near the Jefferson Street bridge and the Mohnacky Animal Hospital of Carlsbad. Under Alternative 1, on the southern channel the flows would overtop the banks by 0.1 feet at one channel station; thus, the flows would largely be contained within the southern channel banks. Therefore, Alternative 1 provides the Maintenance District increased flood protection when compared to the proposed project. However, this maintenance regime would still not provide 100-year flood protection unless levees are improved and raised at least 3 feet, which is outside the scope of services provided by Maintenance District (City of Carlsbad 1989).

Similar to the proposed project, Alternative 1 could result in potential for spills of hazardous materials such as fuel or oil adjacent to the creek. Therefore, impacts would be the same in regards to water quality.

7.3.3 Alternative 2: Vegetation Clearing from One-Half of the Channel Bed Every Year

Alternative 2 includes hand removal of vegetation within the northern half of the channel, between the upstream face of the Jefferson Street bridge east to the downstream face of the South Vista Way bridge every year. All vegetation would be cut at ground level or the water surface and hauled out of the channel and disposed of appropriately. Maintenance activities would occur over a very short duration; typically maintenance activities occur over a 4-week or less period per year.

At Channel Station 1.030, between Channel Stations 1.135 and 1.498, at Channel Station 1.498, and just downstream of the Vista Way bridge, an annual maintenance regime removing vegetation from the northern half of the channel would provide 100-year flood protection and avoid inundating the adjacent parking lot in the Maintenance District with flood water. At other channel station locations, Alternative 2 would not provide 100-year flood protection, but, as with the proposed project, the maintenance would reduce the amount of flooding. *Table 7-2, Channel Banks Overflow during a 100-Year Storm Event for Alternative 2 (Annual Maintenance Regime)*, shows the feet above the southern channel banks[1] that would overflow if no maintenance occurred in the channel. The table also shows the feet above the channel banks that would overflow under Alternative 2. Finally, *Table 7-2* shows the flood protection benefit of Alternative 2.

For example, at Channel Station 1.066, the channel would overtop the banks by 2.2 feet during a 100-year storm event, and by 0.5 feet during following implementation of the maintenance regime. Therefore, after the channel has been maintained the surface elevation flooding would be reduced by 1.7 feet.

Table 7-2
Channel Banks Overflow during a 100-Year Storm Event for Alternative 2 (Annual Maintenance Regime)

Channel Station	Alternative 2: Vegetation Clearing from One-Half of the Channel Bed Every Year		
	No Maintenance (feet)	*After Clearing (feet)*	*Benefit (feet)*
1.066	2.2	0.5	1.7
1.100	2.6	1.1	1.5
1.532	4.0	1.3	2.7
1.564	3.5	0.7	2.8
1.597	3.8	1.0	2.9
1.629	4.0	1.0	3.0
1.661	4.4	1.3	3.1
1.701	4.3	0.5	3.9

[1] Because the majority of the Maintenance District's parking lots on are the southern side of the channel, the hydraulic data presented in *Section 7.0* is for the southern channel banks.

Alternative 2 would achieve project objectives 1, 2, 3, and 4 since it would maintain the channel maintenance program for the Maintenance District to provide continued flood protection for properties within the Maintenance District. It would provide periodic clearing of overgrowth that impedes the free flow of water within Buena Vista Creek and would expand the channel maintenance program west to Jefferson Street bridge. In addition, permits to continue the proposed maintenance activities could be achieved with this alternative.

Biological Resources

As described in this section clearing the channel annually would be considered a permanent impact. While the freshwater marsh and understory of southern willow scrub may recover, it would be sparse for at least 6 months of the year and, therefore, is considered to be a permanent impact. As shown in *Table 7-3, Impacts to Vegetation Communities under Alternative 2*, Alternative 2 would result in approximately 5.08 acres of permanent impacts to special-status vegetation communities and wetlands/waters under the jurisdiction of the ACOE, CDFW, RWQCB, and/or CCC.

Table 7-3
Impacts to Vegetation Communities under Alternative 2

Vegetation Community	Permanent Impacts
Freshwater Marsh	3.67
Open Water	0.13
Southern Willow Scrub	1.28
Total	**5.08**

Specifically, 3.67 acres of freshwater marsh, 1.28 acres of southern willow scrub (understory) and 0.13 acre of open water are within the vegetation removal area. However, no vegetation would be removed under the proposed project maintenance regime in open water. Therefore, Alternative 2 and the proposed project would have the same effect on open water. Permanent impacts to suitable habitat for special-status species that have been observed or have a moderate potential to occur (Appendix H of SEIR Appendix B, Biological Resources Report) including riparian woodland and scrub bird species, freshwater marsh and other wetland bird species, and amphibians and reptiles are expected to occur under Alternative 2 and not under the proposed project. Similar to the proposed project, unforeseen temporary direct impacts during maintenance outside of the maintenance footprint could also potentially occur under Alternative 2. Permanent impacts to special-status amphibians and reptiles individuals are more likely to occur with annual maintenance.

Similar to the proposed project, Alternative 2 would avoid permanent impacts to nesting birds because the vegetation removal activities would not occur during the breeding season (March 15 through September 15). Additionally, under Alternative 2 and the proposed project, impacts to Dulzura pocket mouse are not anticipated because coastal sage scrub would not be impacted and foraging bats would not be impacted. Indirect impacts under Alternative 2 would be similar to the proposed project.

Hydrology and Water Quality

An annual maintenance regime that removes vegetation from the northern half of the channel would provide 45-year flood protection annually as compared to the proposed project which would provide 21-year flood projection in Year 1 and 41-year flood protection in Year 5. Alternative 2 would provide the Maintenance District increased flood protection when compared to the proposed project.

Similar to the proposed project, Alternative 2 could result in potential for spills of hazardous materials such as fuel or oil adjacent to the creek. Therefore, impacts would be the same in regards to water quality.

7.3.4 Alternative 3: Vegetation Clearing from One-Half of the Channel Bed Every 3 Years

Alternative 3 is similar to the proposed project except the interval of the maintenance regime is different. Alternative 3 would include hand removal of vegetation within the northern half of the channel between the upstream face of Jefferson Street bridge east to the downstream face of the South Vista Way bridge over a 3-year period (i.e., one-sixth of the channel each year). Consistent with the proposed project, the vegetation removal would occur only in freshwater marsh and the understory of southern willow scrub; no trees, including riparian trees, would be removed during channel maintenance. Vegetation would be cut at ground level or the water surface and hauled out of the channel and disposed of appropriately. Maintenance activities would occur over a very short duration; typically maintenance activities occur over a 4-week or less period per year.

At Channel Station 1.030, between Channel Stations 1.135 and 1.373, at Channel Station 1.498, and just downstream of the Vista Way bridge, a 3-year maintenance regime would provide 100-year flood protection, in maintenance Year 3, and avoid inundating the adjacent parking lot in the Maintenance District with flood water. At other channel station locations, Alternative 3, a 3-year maintenance regime, would not provide 100-year flood protection, but, as with the proposed project, the maintenance would reduce the amount of flooding. *Table 7-4, Channel Banks Overflow during a 100-Year Storm Event for Alternative 3 (3-Year Maintenance Regime),* shows the feet above the southern channel banks that would overflow if no maintenance occurred in the channel. The table also shows the feet above the channel banks that would overflow during Year 1 through Year 3 of a

3-year maintenance regime. Finally, *Table 7-4* shows the flood protection benefit for Year 1 through Year 3 of Alternative 3, a 3-year maintenance regime.

For example, at Channel Station 1.066, the channel would overtop the banks by 2.2 feet during a 100-year storm event without maintenance, and by 0.5 feet during Year 1 of 3-year maintenance regime. Therefore, in Year 1 of a 3-year maintenance regime the surface elevation flooding would be reduced by 1.7 feet.

Table 7-4
Channel Banks Overflow during a 100-Year Storm Event for Alternative 3 (3-Year Maintenance Regime)

Channel Station	Alternative 3: 3-Year Maintenance Regime						
	No Maintenance (feet)	*After Year 1 (feet)*	*Year 1 Benefit Over No Maintenance (feet)*	*After Year 2 (feet)*	*Year 2 Benefit Over No Maintenance (feet)*	*After Year 3 (feet)*	*Year 3 Benefit Over No Maintenance (feet)*
1.066	2.2	0.5	1.7	0.6	1.6	0.6	1.6
1.100	2.6	1.1	1.5	1.3	1.4	1.3	1.3
1.413	1.4	0.4	1.0	-0.3	1.8	0.0	1.4
1.454	1.8	1.0	0.9	-0.1	2.0	0.3	1.6
1.532	4.0	3.4	0.6	1.8	2.2	1.9	2.1
1.564	3.5	3.0	0.5	1.8	1.7	1.3	2.2
1.597	3.8	3.4	0.4	2.4	1.4	1.5	2.4
1.629	4.0	3.6	0.4	2.8	1.2	1.5	2.5
1.661	4.4	4.1	0.3	3.3	1.1	1.7	2.7
1.701	4.3	4.1	0.3	3.5	0.9	0.9	3.4

Alternative 3 would achieve project objectives 1, 2, 3, and 4 since it would maintain the channel maintenance program for the Maintenance District to provide continued flood protection for properties within the Maintenance District. It would provide periodic clearing of overgrowth that impedes the free flow of water within Buena Vista Creek and would expand the channel maintenance program west to Jefferson Street bridge. In addition, permits to continue the proposed maintenance activities could be achieved with this alternative.

Biological Resources

Similar to the proposed project, no permanent direct impacts to special-status biological resources would occur under Alternative 3. Temporary direct impacts to special-status species and indirect impacts to special-status biological resources under Alternative 3 would also be the same as the proposed project. However, temporary direct impacts to special-status vegetation

communities and jurisdictional waters, including wetlands, would increase on a per-year basis under Alternative 3 when compared to the proposed project. Specifically, vegetation removal would occur in 2.05 acres of the channel in Year 1, 1.55 acres of the channel in Year 2 and 1.48 acres of the channel in Year 3, for a total of 5.08 acres in Year 3 as compared to the proposed project, which would result in impacts to 5.08 acres of the channel over a 5-year period. However, no vegetation would be removed under the proposed project maintenance regime in open water, and Alternative 3 and the proposed project would have the same effect on open water. *Table 7-5, Impacts to Vegetation Communities under Alternative 3 (3-Year Maintenance Regime),* shows the specific vegetation communities impacted in each maintenance year under Alternative 3. The 5.08 acres of the channel within the maintenance area under Alternative 3 is also under the jurisdiction of the ACOE, CDFW, and RWQCB as waters, including wetlands. Additionally, of the 2.05 acres of are maintained in Year 1, 1.6 acres is under the jurisdiction of the CCC as wetlands.

Table 7-5
Impacts to Vegetation Communities under Alternative 3 (3-Year Maintenance Regime)

Maintenance Year	Vegetation Community	Temporary Direct Impacts
Year 1	Freshwater Marsh	1.87
	Open Water	0.13
	Southern Willow Scrub	0.05
	Subtotal	*2.05*
Year 2	Freshwater Marsh	1.19
	Southern Willow Scrub	0.36
	Subtotal	*1.55*
Year 3	Freshwater Marsh	0.62
	Southern Willow Scrub	0.87
	Subtotal	*1.48*
	Grand Total	**5.08**

Hydrology and Water Quality

The 3-year maintenance regime proposed under Alternative 3 would provide between 21-year flood protection in maintenance Year 1 and 43-year flood protection in Year 3 as compared to the proposed project which provides 21-year flood projection in Year 1, 23-year flood protection in Year 3 and 41-year flood protection in Year 5. Alternative 3 would provide the Maintenance District increased flood protection when compared to the proposed project.

Similar to the proposed project, Alternative 3 could result in potential for spills of hazardous materials such as fuel or oil adjacent to the creek. Therefore, impacts would be the same in regards to water quality.

7.3.5 Alternative 4: Vegetation Clearing from One-Half of the Channel Bed Every 6 Years

Alternative 4 is similar to the proposed project except for the interval of the maintenance regime. Alternative 4 includes hand removal of vegetation within the northern half of the channel between the upstream face of Jefferson Street bridge east to the downstream face of the South Vista Way bridge over a 6-year period (i.e., one-twelfth of the channel each year). Consistent with the proposed project, the vegetation removal would occur only in freshwater marsh and the understory of southern willow scrub; no trees, including riparian trees, would be removed during channel maintenance. Vegetation would be cut at ground level or the water surface and hauled out of the channel and disposed of appropriately. Maintenance activities would occur over a very short duration; typically maintenance activities occur over a 4-week or less period per year.

At Channel Station 1.030, between Channel Stations 1.135 and 1.336 and just downstream of the Vista Way bridge, a 6-year maintenance regime would provide 100-year flood protection, in maintenance Year 6, and avoid inundating the adjacent parking lot in the Maintenance District with flood water. At other channel station locations, Alternative 4, a 6-year maintenance regime, would not provide 100-year flood protection, but, as with the proposed project, the maintenance would reduce the amount of flooding but not as much as the proposed project. *Table 7-6, Channel Banks Overflow during a 100-Year Storm Event for Alternative 4 (6-Year Maintenance Regime)*, shows the flood level at the channel banks if no maintenance occurred in the channel. The table also shows the flood levels during Year 1 through Year 6 of a 6-year maintenance regime. *Table 7-6* also shows the flood protection benefit of Alternative 4, a 6-year maintenance regime.

Alternative 4 would achieve project objectives 1, 2, 3, 4, and 5 since it would maintain the channel maintenance program for the Maintenance District to provide continued flood protection for properties within the Maintenance District while reducing potential impacts to biological resources. It would provide periodic clearing of overgrowth that impedes the free flow of water within Buena Vista Creek and would expand the channel maintenance program west to Jefferson Street bridge. In addition, permits to continue the proposed maintenance activities could be achieved with this alternative.

Table 7-6
Channel Banks Overflow during a 100-Year Storm Event for Alternative 4
(6-Year Maintenance Regime)

Channel Station	Alternative 4: 3-Year Maintenance Regime												
	No Maintenance (feet)	*After Year 1 (feet)*	*Year 1 Benefit Over No Maintenance (feet)*	*After Year 2 (feet)*	*Year 2 Benefit Over No Maintenance (feet)*	*After Year 3 (feet)*	*Year 3 Benefit Over No Maintenance (feet)*	*After Year 4 (feet)*	*Year 4 Benefit Over No Maintenance (feet)*	*After Year 5 (feet)*	*Year 5 Benefit Over No Maintenance (feet)*	*After Year 6 (feet)*	*Year 6 Benefit Over No Maintenance (feet)*
1.066	2.2	0.5	1.7	0.6	1.6	0.6	1.6	0.6	1.6	0.7	1.6	0.7	1.5
1.100	2.6	1.1	1.5	1.3	1.4	1.3	1.3	1.4	1.2	1.4	1.2	1.5	1.2
1.373	1.0	0.1	0.8	-0.1	1.1	-0.5	1.5	-0.2	1.2	0.0	1.0	0.1	0.8
1.413	1.4	0.7	0.7	0.5	0.9	-0.1	1.5	0.0	1.4	0.3	1.1	0.4	1.0
1.454	1.8	1.2	0.6	1.0	0.8	0.5	1.3	0.2	1.6	0.5	1.3	0.7	1.1
1.498	1.6	1.0	0.5	0.9	0.7	0.5	1.1	-0.5	2.0	-0.1	1.6	0.2	1.3
1.532	4.0	3.6	0.4	3.5	0.5	3.2	0.8	2.1	2.0	2.1	1.9	2.5	1.5
1.564	3.5	3.1	0.4	3.0	0.4	2.8	0.7	1.9	1.5	1.4	2.0	1.8	1.6
1.597	3.8	3.5	0.3	3.4	0.4	3.2	0.6	2.5	1.3	1.6	2.2	2.1	1.8
1.629	4.0	3.7	0.3	3.6	0.3	3.5	0.5	2.9	1.1	1.8	2.2	2.0	1.9
1.661	4.4	4.2	0.2	4.1	0.3	3.9	0.5	3.4	1.0	2.6	1.8	2.3	2.1
1.701	4.3	4.1	0.2	4.1	0.3	4.0	0.4	3.5	0.8	2.9	1.4	1.5	2.9

Biological Resources

Similar to the proposed project, no permanent direct impacts to special-status biological resources would occur under Alternative 4. Temporary direct impacts to special-status species and indirect impacts to special-status biological resources under Alternative 4 would also be the same as the proposed project. However, temporary direct impacts to special-status vegetation communities and jurisdictional waters, including wetlands, would decrease on a per-year basis under Alternative 4 as compared to the proposed project. Specifically, vegetation removal would occur in 1.05 acres of the channel in Year 1, 1.00 acres of the channel in Year 2, 0.64 acre of the channel in Year 3, 0.90 acre in Year 4, 0.76 acre in Year 5, and 0.73 acre in Year 6, for a total of 5.08 acres, as compared to the proposed project, which would result in impacts to 5.08 acres of the channel over a 5-year period. However, no vegetation would be removed under the proposed project maintenance regime in open water. Therefore, Alternative 4 and the proposed project would have the same effect on open water. *Table 7-7, Impacts to Vegetation Communities under Alternative 4 (6-Year Maintenance Regime)*, shows the specific vegetation communities impacted in each maintenance year under Alternative 4. The 5.08 acres of the channel within the maintenance area under Alternative 4 is also under the jurisdiction of the ACOE, CDFW, and RWQCB as waters, including wetlands. Additionally, of the 2.05 acres of are maintained in Years 1 and 2, 1.6 acres is under the jurisdiction of the CCC as wetlands.

Table 7-7
Impacts to Vegetation Communities under Alternative 4 (6-Year Maintenance Regime)

Maintenance Year	Vegetation Community	Temporary Direct Impacts
Year 1	Freshwater Marsh	0.92
	Open Water	0.13
	Southern Willow Scrub	0.00
	Subtotal	*1.05*
Year 2	Freshwater Marsh	0.95
	Southern Willow Scrub	0.05
	Subtotal	*1.00*
Year 3	Freshwater Marsh	0.60
	Southern Willow Scrub	0.04
	Subtotal	*0.64*
Year 4	Freshwater Marsh	0.59
	Southern Willow Scrub	0.32
	Subtotal	*0.90*
Year 5	Freshwater Marsh	0.29
	Southern Willow Scrub	0.47
	Subtotal	*0.76*

Table 7-7
Impacts to Vegetation Communities under Alternative 4 (6-Year Maintenance Regime)

Maintenance Year	Vegetation Community	Temporary Direct Impacts
Year 6	Freshwater Marsh	0.33
	Southern Willow Scrub	0.40
	Subtotal	*0.73*
	Grand Total	**5.08**

Hydrology and Water Quality

The 6-year maintenance regime proposed under Alternative 4 would provide between 21-year flood protection in maintenance Year 1 and 39-year flood protection in Year 6, as compared to the proposed project which also provides 21-year flood projection in Year 1, but 41-year flood protection in Year 5, or at the completion of one maintenance cycle. Therefore, Alternative 4 would provide the Maintenance District decreased flood protection when compared to the proposed project.

Similar to the proposed project, Alternative 4 could result in potential for spills of hazardous materials such as fuel or oil adjacent to the creek. However, as discussed above, this alternative would result in decreased flood protection, which could result in an increase of pollutants being introduced into the creek. Therefore, Alternative 4 would result in increased impacts to water quality.

7.4 SUMMARY MATRIX

A matrix displaying the major characteristics and significant environmental effects of each alternative is provided in *Table 7-8, Summary of Alternatives' Impacts*, to summarize the comparison. The matrix also indicates whether the alternative meets the project objectives as defined in *Section 3.1.2*.

Table 7-8
Summary of Alternatives' Impacts

Environmental Issue	No Project Alternative	Alternative 1: Vegetation Clearing of the Entire Channel Bed Every Year	Alternative 2: Vegetation Clearing from ½ the Channel Bed Every Year	Alternative 3: Vegetation Clearing from ½ the Channel Bed Every Three Years	Alternative 4: Vegetation Clearing from ½ Channel Bed Every Six Years
Biological Resources	Impacts avoided	Greater impacts	Greater impacts	Greater impacts	Impacts reduced
Hydrology and Water Quality	Potential spill impacts avoided; other impacts would be greater	Similar impacts	Similar impacts	Similar impacts	Potential water quality impacts would be slightly greater, other impacts would be similar

Table 7-8
Summary of Alternatives' Impacts

Environmental Issue	No Project Alternative	Alternative 1: Vegetation Clearing of the Entire Channel Bed Every Year	Alternative 2: Vegetation Clearing from ½ the Channel Bed Every Year	Alternative 3: Vegetation Clearing from ½ the Channel Bed Every Three Years	Alternative 4: Vegetation Clearing from ½ Channel Bed Every Six Years
Meets Most Project Objectives?	No	Yes	Yes	Yes	Yes

7.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Alternatives discussed in *Section 7.2, Alternatives under Consideration,* are compared to the proposed project in *Table 7-8*.

Per Section 15126.6(e)(2) of the CEQA Guidelines, an environmentally superior alternative must be identified (other than the no project alternative). CEQA also requires that the environmentally superior alternative be selected from the range of reasonable alternatives that could feasibly attain the basic objectives of the project.

As discussed in *Section 7.2* and summarized in *Table 7-8,* impacts resulting from implementation of the proposed project would mostly be avoided under the No Project Alternative. However, the project objectives would not be met under this alternative. CEQA Guidelines Section 15126.6(e)(2) states that if the environmentally superior alternative is the no project alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.

Alternatives 1 through 3 would result in greater impacts to biological resources, and would have similar impacts to hydrology and water quality. Alternative 4 would result in reduced impacts to biological resources, with similar impacts to hydrology and water quality.

Overall, Alternative 4 would achieve the greatest reduction in environmental impacts, and thus would be the environmentally superior alternative.

CHAPTER 8
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